DOCUMENT RESUME

ED 093 205 HE 005 641

AUTHOR	Bailey, Jan, Ed.
TITLE	MIS In-Service Session on The Dynamics of Small College Management. Volume II. Conference Proceedings.
INSTITUTION	Institute for Services to Education, Inc., Washington, D.C. TACTICS Management Information Systems Directorate.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Feb 74
NOTE	91p.
EDRS PRICE	MF-$0.75 HC-$4.20 PLUS POSTAGE
DESCRIPTORS	Conference Reports; *Educational Administration; *Higher Education; *Management; *Management Information Systems; Management Systems; *Small Schools

ABSTRACT

This document presents the proceedings of an invitational conference, held in Washington, D.C., February 21-22, 1974 concerning the dynamics of small college management. Discussion topics encompassed management information systems packages for small colleges. Various presentations discussed the Plantran System, the resource requirements prediction model, the diagnostic and prescriptive information model, implementing a management information system via a computerized planning mode. Special interest group sessions discussed how to implement a data management system, a new curriculum plan for an old college, and a systems approach to curriculum development. Perspectives on the advanced institutional development program are also presented. For the keynote address, see HE 005 640. (MJM)

MIS In-Service Session on

THE DYNAMICS OF SMALL COLLEGE MANAGEMENT

Volume II

Conference Proceedings

February 1974

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

MANAGEMENT INFORMATION SYSTEMS

INSTITUTE FOR SERVICES TO EDUCATION, INC.
2001 S Street N.W., Washington, D.C. 20009

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The Institute for Services to Education (ISE) was incorporated as a non-profit organization in 1965 and subsequently received a basic grant from the Carnegie Corporation of New York. The organization is founded on the principle that education today requires a fresh examination of what is worth teaching and how to teach it. ISE is a catalyst for change. Under grants from government agencies and private foundations, ISE undertakes a variety of educational tasks working cooperatively with other educational institutions. It does not just produce educational materials or techniques that are innovative; it develops, in cooperation with teachers and administrators, procedures for effective installation of successful materials and techniques in the field of education.

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A TACTICS PROGRAM

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The Management Information Systems portion of the TACTICS program under the aegis of the Institute for Services to Education, Inc., has as one of its mandates to train college administrators in the development of information systems. This particular institute was designed for that purpose.

ED 093205

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ACKNOWLEDGEMENTS

This conference is a result of a cooperative effort of many people and their agencies. The Technical Assistance Consortium to Improve College Services (TACTICS), the Institute for Services to Education, Inc. (ISE), the two parent structures for the MIS program were as always most supportive of our efforts. Without their wise council much time and program substance may have been sacrificed.

The conference participants, without whom there would have been no conference participated heavily in its structuring and through their energy contributed to its vitality. As in the style of MIS when scheduling conferences, prospective participants are polled via survey and their suggestions are taken toward the conference's scope and structure. The response for this conference was so overwhelming that an extended one is being structured for the next fiscal year. Our sincere gratitude to these, our colleagues, is always our pleasure.

Finally we would like to express our appreciation to the MIS "invisible troops." These are the dexterous persons who comprise the MIS staff who are seldom seen. They are the technicians which make things run smoothly or roughly, quickly or slowly, but each in their own way guarantees that it runs as it is meant to. As always we are indebted to you and when orchids come our way we are content to know that we are merely accepting them as your representative.

JAW

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February 21-11, 1974

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INTRODUCTION

INTRODUCTION

This invitational conference, held in Washington, D.C., February 21-22, 1974, was co-sponsored by the Management Information Systems Directorate of the Institute for Service to Education and the Technical Assistance Consortium to Improve College Services (TACTICS). The conference was derived from a recognition by the Management Information Systems Directorate of the need for governmental officials, educators, and computer specialists to interact in a meaningful way around the growing complexity, difficulties, and crises that many educational institutions are confronted with in this age of specialization. In the institution of the future, as it is visualized at ISE, educators are going to have to manage their limited resources much better than the past if they are to manifest effective growth in the society of the future. The major purpose of the conference was to inform educators/decision-makers as to the most direct and efficient means of seeking and acquiring imaginative management capability. Developing improved managerial competence is a way of saying that there are new demands for improving techniques for the elimination of educational planning deficiencies. In this conference, the state of the art of computer-related systems, MIS, PPBS (Planning, Programming, and Budgeting Systems), and MBO (Management By Objectives) were reviewed as background for considering possible future trends in management development for educational institutions. Faced with these challenges, the more than 70 persons of varied backgrounds in attendance made invaluable contributions by their interest and active participation in discussions. The conference served its purpose in providing a forum for the exchange of current information and a locus for discussion and action for the future. MIS/ISE is indebted to the participants for their alertness and responsiveness to the important problems of educational planning and small college management. Extensive discussion are included in this volume for the convenience of those who could not attend the conference.

CONFERENCE AGENDA

THE DYNAMICS OF SMALL COLLEGE MANAGEMENT

Conference Agenda

February 21-22, 1974

Thursday, February 21, 1974

Conference Welcome

James A. Welch, Director/MIS

General Session I

"Management Information Systems Packages for Small Colleges"

Panel Discussion Participants

The Plantran System—William Sutterfield representing Midwest Research Institute

The Resource Requirements Prediction Model—Gary Gasmo representing The National Center for Higher Management Systems

The Diagnostic and Prescriptive Information Model—Jack White representing Optimum Computer Systems, Inc.

Implementing a Management Information System via a Computerized Planning Model—Ted Zaharchuk representing Systems Dimensions Limited

Discussants

Henry Ponder *President*	Benedict College
Defield T. Holmes *Vice Chancellor*	Fayetteville State University
Ruthford Adkins *Vice President*	Fisk University
Charles Teamer *Vice President for Fiscal Affairs*	Dillard University

SPECIAL INTEREST GROUPS SESSION

How to Implement a Data Management System for your Institution–Sondra O. Ferguson, Systems Analyst, MIS/Institute for Services to Education, Inc.

A New Curriculum Plan for an Old College–Gordon Robinson, Director of Institutional Research, St. Augustine's College

A Systems Approach to Curriculum Development–Roosevelt Calbert, Director and Joel Nwagbaraocha, Associate Director, Cooperative Academic Planning (CAP)/TACTICS

General Session II

Perspectives on the Advanced Institutional Development Program: What It Means to You–Anita Allen, Director of the AID Program, U.S. Office of Education

Friday, February 22, 1974

General Session III (Keynote Address, Vol. I)

The Educational Enterprise and Managing Priorities to Meet Community Needs–Dr. Cleveland Dennard, President, Washington Technical Institute

CONFERENCE WELCOME

James A. Welch
Director

Management Information Systems Directorate
Institute for Services to Education, Inc.

Good morning, ladies and gentlemen. My name is Jim Welch.

I want to thank you for coming and joining in the second In-Service Session of the MIS/TACTICS program.

The theme of this conference is "Small College Management." The aim is to explore and study the management problems of the type of institutions represented here today. These institutions are interrelated in the sense that maximum management capabilities must be developed. More effective Planning systems need to be established if the small institution is to continue to make a contribution to the political, economical, cultural, and social growth of this country.

I hope this will be the first of a series of conferences designed to deal with issues of educational management. We have assembled educators, management information technologists, computer equipment specialists, governmental officials, and private industry for the purposes of examining and evaluating for you, the most up-to-date procedures and practices bearing upon management responsibilities. They are knowledgeable and accessible.

Again, I welcome you and if you need assistance, please call on us.

MANAGEMENT INFORMATION SYSTEMS PACKAGES FOR SMALL COLLEGES

THE PLANTRAN SYSTEM

William Sutterfield
Midwest Research Institute

I welcome the opportunity to be a part of this conference. While I have not had the opportunity to work with traditionally black institutions, I have worked with a number of small colleges and presently serve as Executive Vice President and Dean of a small college in South Dakota with a student population of under 500 students. Today, I represent the Midwest Research Institute which developed the Plantran System. Plantran is an acronym for Planning Translator.

As a college official utilizing a computer system, it is significant for me to note the benefits derived in terms of meeting planning and management needs. Before describing the extent of computer usage, let me survey this group by asking, how many of your colleges do not have an in-house computer or terminal access to a computer system for administrative services? Well we don't have a computer on our campus at Heron, but we do have a couple of systems operating.

The system called Plantran provides the decision-maker the opportunity to work with institutional data projecting it into the future giving the decision-maker a chance to simulate the information so that analysis might provide comprehensive appraisal for mission accomplishment. The approach is based on the concept of model utilization. A model for this discussion is a technique of abstracting or simplifying a reality process for purposes of studying the characteristics thereof. The model represents that reality for which it is intended.

In the case of modeling an institution for planning purposes, the discussion is about a mathematical model, as a representation of the institution. For example, if you talk in terms of number of students, number of faculty, number of major programs, number of administrators, how many live in the residence halls, etc., then a mathematical description for the institution is being developed to express a quantitative relationship among key elements.

The Plantran System was developed by Midwest Research Institute in the Fall of 1968 under a contract with the Kansas City Regional Council of Higher Education. This system allows the decision-maker to develop a model for the institution and is designed to project results into the future.

As an example of the application of the Plantran System technique, let's assume that full-time students will decrease from 800 to 700 in the next couple of years, for whatever reasons. The critical consideration is whether lack of tuition revenue is going to stimulate

cutbacks in some aspects of college operations. Your task would be to determine the lines that go into the model and simply give it instruction. In this hypothetical case, tuition is $800 per student, therefore, tuition revenue may be a function of full-time students times the tuition to generate "X" amount of income from tuition. You are beginning to formulate a general descriptive model of the process to be analyzed. Residence hall students may be a percentage of full-time students, and each time a different factor presents itself, you give the model instructions as to how you want it to handle that factor. The next step is to use the results of your analysis to develop planning objectives or rerun the model until you have confidence in the validity of the results.

Much of these kind of results could be done on paper, but in terms of dollars and people, the approach mentioned here reduces over-all institutional costs. Let me give you a personalized example. As planning officer for Park College in Kansas City, I developed an institutional model composed of 80 items. These included items on dollars and people, books to the library, three years of historical data, etc. I projected each of these items into the future. It was established as a goal that our current library would double in a ten year period and I put in how many books would be needed each year in order to bring it up to that period. Then we assumed that the current cost of books was about $8 a book and that would be increasing at an inflationary rate of about 5%, so each year I put in a new cost for books and then calculated what would have to be spent in the library each year. This ten year projection for 84 items was estimated in time cost to the college in excess of $700. In reporting my findings to the President and the Dean, the President said "well, I think you're a little pessimistic on your enrollment, I think we can increase our enrollment by this much. Go back and do the figures again." Unfortunately, out of that several hundred investment, about two-thirds of it had to be done again. All these calculations had to be run out again. The lesson here is that, without a computer, tinkering with the numbers will cause you to suffer—through a laborious manual process. With the Plantran System, the decision-maker uses less time by using a model of the institution.

As a matter of fact, the first Plantran model at Park College went from the 84 that I had on paper to about 270 items or variables. We were able to project very quickly because we had already engineered part of the thinking work. We were able to project how we wanted each item to go into the future, and the computer time per run, that is each time you solve the problem, the computer time was in the realm of ten or twelve dollars.

Also, we found a way to put in changes in advance. Let's say we want to determine what's going to happen if our enrollment fluctuates. You put in several alternatives and the computer will crank through the numbers and give you the print out in whatever format you want with a few limitations. You can format your own reports and get the information for each of the alternatives clearly identified as alternative one, alternative two and so on.

The mechanics of planning have been very much simplified and its easy to use it. We do not have an in-house computer at Heron, but we mail instruction to the center where one is located. I surmise that it would be possible for the system to be installed on one of the computers within your organization, and others could mail their instructions if for example, arrangements could be made for this kind of activity.

What I think we've learned after several years of working with small colleges and schools of all sizes in both the United States and Canada is that it's so easy to work with the numbers. It focuses attention on decision-makers and on the quality of decisions. As officers of institutions, we recognize that the quality of the input is key. Mastering the numbers is quite simple and fairly inexpensive. We do all the runs necessary, spend more than five or six hundred dollars a year on computer time totally, and get more paper than we really want out of the process. Now that the numbers are easy to process, program managers must put their attention on the quality of the decisions that go in. Sure, you can solve your problems by assuming that our present 450 some full-time equivalent at Heron will increase to 700 in the next four years. Now I can solve all the problems of the world that way, but that isn't the way things are going to be solved and we know that. American higher education has tried this in the last decade. *We built dormitories we don't need now in many cases and we've hired staff that are surplus in terms of numbers.* What we now have is a tool that will take care of the numbers for you at whatever format you determine effective for planning needs. The real critical decisions are what numbers are essential and what assumptions have been established.

I hope I've conveyed to you that Plantran is a language that is available for you. The input is very simple. The meshing of the technology and the numbers have worked for us very effectively. Now our task is to provide leadership for small colleges or any institution of higher education in the next few years.

The current "state-of-the-art" is such that systematic and reliable measures of data sensible material(s), correct planning assumptions, the desired curriculum assemblage, and well-trained staff personnel are prime ingredients for a superior educational program. Help is available in the hardware of computer systems and such help could become a major variable in keeping small colleges alive.

THE RESOURCE REQUIREMENTS PREDICTION MODEL

Gary Gasmo
National Center for Higher Education Management Systems
(NCHEMS)

In the brief time available to me, I am going to highlight a program of the National Center for Higher Education Management Systems as they focus on the concerns of management systems for institutions represented here today. We are a federally funded organization that takes federal dollars and develop planning and managment systems that are available to all post-secondary institutions in the country at some minimal cost of reproducing the printed materials.

We've been in the business for a few short years and have developed techniques and tools that are available to education managers to help them more effectively manage their institutions.

Being second on the program this morning, some of the ground work in terms of defining an institutional model has been laid. I'll pick up from there and discuss information systems in general for a few minutes, and then talk about a model that's on the market that's similar to Plantran and many other analytic models that are used for cost estimation.

Information systems are the collection and use of information witnin an institution to help you more effectively manage your institutional resources. We look at information systems as a three tiered operation in that there are three levels of information systems that an institution is involved in for implementation.

The first level is the operational information systems that you use on a day to day basis to perform the operational responsibilities that you have at your institution. Such things as payrolls, student registration and accounting systems or the operational data systems that comprise the types of information systems on many campuses.

The second level that you would build once you had the operational data systems would be the MIS. The management information systems are the types of systems that collect, relate and organize the information as a part of the operational data system and provide the institution with information that is used to measure how effectively the resources of the institution are being utilized. Historical data from each of the financial, students and personnel operational information systems are collected and related in producing the management information system.

The third level is the planning and managing systems. This is taking the MIS and the operational information systems and applying some policy decisions that occur within an institution to project how these policy decisions are going to influence resource allocation and resource use in the future. The National Center has on the market a product, in fact, there was a presentation during the Atlanta In-Service Training Session on designing specifications to serve your institution by Tuskegee Institute, and, during that presentation they addressed themselves briefly to the resource requirements prediction model implementation that is being used at their institution. This is briefly what I'd like to speak about. It's our product. It is similar to Plantran and similar to the other types of analytic models that are on the market. It begins by relating student data elements to the financial data elements to personnel type data.

THE RESOURCE REQUIREMENTS PREDICTION MODEL (RRPM)

This model is simply an instructional simulation model that allows an institution to develop, in its instructional area, data that would relate personnel in the form of faculty and support staff within a department to credit hours as credit hours are demanded by students in programs from the department. In addition, it collects departmental expenditure data. It's a little different from Plantran in that, structurally, it requires that the data submitted to the model fit into one of three categories.

One category is faculty. It should be related to faculty. It should be related to support staff or it should be related to the departmental expenditure in the case of financial data. The student data is collected by another software package that supports the resource requirement prediction model. It begins trying to identify the supply-demand relationship between students in degree programs demanding or requiring course work from the organizational units within the institution, that is, the departments.

We've developed in the past few years a software package that in an analytical way identifies the supply-demand relationship and provides that data through the simulation model RRPM.

In addition to working in the instructional area and simulating and providing management information, the RRPM also honors data that is related to what we think of as support activities within the institution.

As we were discussing earlier this morning, the libraries, the registrar's office, the financial aid office, the president's office, and so forth are provided to the model in the form of linear equations where the dollar expended in the library, for simulation purposes, is used to project a fixed number of dollars. They can also be related in a linear fashion to the number of students, the number of student credit hours, or the number of faculty within the institution.

For simulation capability you can develop a linear equation that will allow you to simulate your budget expenditures outside of instructional data. We realize that the expenditures outside of instruction isn't nearly in the depth that instructional areas are.

About a year ago, we began doing a little rethinking. We were beginning to ask some hard and fast questions about whether what we were doing was reasonable, and whether we were taking all of these federal monies and putting them to good use. It also occurred to the members of our advisory structure and Board of Directors, who are institutional representatives and provide us with policy-making decisions as well as technical advice, that it would be good if a field test was conducted on the types of products that we had in the field because we lacked a marketing unit.

We developed a consortium of 60 colleges around the country, 20 of which were community colleges, 20 of which were state colleges and 20 of which were private colleges. Fisk University and Tuskegee Institute which are represented today, were two members of the private college consortium. The objectives with each of these three consortia was to first field test our resource requirements prediction model, our analytic models and to get some feedback on how useful these models were in managing an institution. Secondly, we agreed that we had to offer something so we gave them the resources of people like myself and our application and implementation unit in helping develop the institutional capability on campuses. Thirdly, we were field testing a set of information exchange procedures that we've been developing for a number of years. The procedures themselves are intended to represent a set of standards and procedures and methodologies for collecting and displaying data that would be exchangeable and could be used to some extent for comparative analysis.

The results of the consortium was that for each of the 60 institutions that participated, a document was produced that represents some of the procedures that were used. We represented the cost of implementing the software on each of the campuses and of actually performing the cost study, and then we represented some of the exchangeable data, the average cost per credit hour within a discipline or the cost per program major for a year in the case of the student majors.

A large overview of the preliminary information exchange procedures, how we begin trying to collect student related data elements, financial related data elements and personnel data elements, how we process them and some of the software that we had, the model that we had, and the reports that resulted are available to all interested parties.

THE DIAGNOSTIC AND PRESCRIPTIVE INFORMATION SYSTEM

Jack White
Optimum Computer Systems

Some of our ideas and concepts are already contained in some of the documents that are put out by TACTICS. Of the information systems we think are applicable in the schools, there is one that Optimum has developed to the stage where it is now ready for the market. We think it is one of the little systems that is probably going to be as important as all of the management techniques that other models represent.

It grows out of an experience we had in working on a project in New York City with the Board of Education. We found that everybody was concerned with the raising of funds and the acquisition of books etc. Very few people were paying a lot of attention to the information handling problems of the classroom teacher—so we tried to look at that particular problem to see what were the requirements and what were the kinds of things that we could do to add a subsystem to the whole information system that the schools were operating.

What we came up with was called the Diagnostic and Prescriptive System. What it attempts to do goes something like this. I think most of you in this room at one time have been a classroom teacher or you have been in a classroom where there were teachers. You've had students who at one point seem to turn some lights on in their heads and they grasp the information given them. You become really proud of yourself in that you've done a fantastic job with that student. Three or four years later you run into another young man or young lady with similar kinds of deficiencies, but you've already forgotten all those positive things you did with past students. What our Diagnostic and Prescriptive System attempts to do is to retrieve in a data base all of those positive prescriptive techniques that good educators have come up with, in such a way that they're available. This process is similar to what's being done in some of the hospital surgical rooms. Information of previous similar operations by the surgeon is made available as he begins to operate.

We think a part of the applicability in colleges is that many of the students who graduate from your schools are going into the teaching profession. Much of what they've learned at the school, as good as it might be, may not necessarily fit at day one when they walk into the classroom, in terms of solving some of the deficiencies of those students. It doesn't matter whether we're talking about Math, English, or Reading. The Diagnostic and Prescriptive System allows the teacher to be able to manage, more efficiently, the individual preparation for each

of the students to reasonably assure that they're able to achieve the objectives that the teacher has set for that student. We would like to add our little subsystem to these sophisticated information systems that you're going to be getting.

NOTE: Information on Optimum Diagnostic and Prescriptive System may be secured by writing to Dr. Cyril Tyson, 135 Madison Avenue, N.Y., N.Y. 10016

IMPLEMENTING A MANAGEMENT INFORMATION SYSTEM VIA A COMPUTERIZED PLANNING MODEL

Ted Zaharchuk
Systems Dimensions Limited

I'd like to begin the presentation by spinning out a number of caviats. First of all, the major caviat on the use or development of management systems packages relates to the term package itself. All of us know what a package is, something that is wrapped up, it might be tied with a ribbon, and if we're bringing a management system package to our college or university, we tend to think of it as something that we can unwrap, we can take the ribbons off it, and we can immediately use it in some direct way to solve administrative problems, to solve management problems. Let me assure you, there is really no such thing.

All institutions, be they large or small colleges or universities, already have some form of management system. The existing system must obviously work, because the college exists and continues to operate. No cookie cutter system or package of management techniques superimposed over the existing management or operating system of the university or college can be expected to work adequately. In fact, under some conditions, I think that the cookie cutter package approach in management systems can be extremely destructive to the organization in which it is implemented.

Where the management system tends to become destructive is in failing to realize that the basic objective of any management system should be to make the best use of all of the latent human resources available to that organization. Management is a human preoccupation. Management techniques are, by definition, arbitrary and binding. If not properly designed, they can constrain the capability and the creative instincts of the people who operate within that system.

Every management system package should begin with the organization for which it's being designed, should be custom designed, and should recognize the reorganization is unique, has its own operating characteristics and is characterized by different styles of leadership and operation. I've seen many management systems disintegrate at their inception because implementation was the total responsibility of external agents. If these agents don't have significant or sufficient sensitivities for the uniqueness of the institution and its operating capabilities, the system isn't going to work. This is the primary caviat. Implementation of the management system has to be the primary responsibility of internal personnel in the organization. They have to identify with the organization or it just isn't going to work. They have to take the leadership role in its implementation, and they must also live with the consequences, and I think that's the major point.

What then is the role of external consultants in the development of management procedures? I see three roles.

First of all, external consultants should be considered technicians, technical experts. They deal with numbers, statistics and the development of procedural forms.

Secondly, most general consultants have been involved with a lot of different agencies, and they bring a very broad perspective on education and management systems throughout agencies and universities and colleges.

Thirdly, consultants are, or should be, masters of communication. So their fundamental role in the implementation and development of management systems is related to education. Their forum is the management seminar, face to face discussions with administrators, etc.

Now for my final caviat, and then I'll talk about some of the systems that we have. If a management system is not a package or a gift wrapped thing that you unwrap on the campus, it cannot be easily implemented. Successful implementation requires a great deal of time. We cannot expect any kind of instant response or instant capability in any package. I've never seen a management system developed and operating successfully in less then two years elapsed time, minimum period. The reasons are simple.

Any new procedure, even procedures involving only a very simple deviation from past habits, creates uncertainties in administrators. These new procedures should be phased slowly into the operation and very carefully, and this requires time. Now, what kind of management system package would I recommend for a small college?

Let's begin by thinking of all the managerial and administrative assets that exist in a college.

First we have human talent and the capabilities that are involved in that.

Secondly, we have decisionmaking procedures, for example, planning, programming and budgeting systems, various applications of management objectives. That's the procedural level.

Thirdly, we should have an information system, or an information delivery system which provides raw information which is useful or fundamental to the decision making process.

Those are the three general categories. The final two categories, the decision making procedures and the information delivery system are what I would call the management system package or management information system or planning, management and information system.

Note: **The SDL systems were presented to the participants at the conference via a graphic presentation. We regret that they are not available for inclusion in this report. Those persons interested in the SDL CAMPUS management system model should write to Mr. Ted Zaharchuk, System Dimensions Ltd., 11 Avenue Road, Toronto, Ontario M5R 3J8 Canada.**

QUESTION AND DISCUSSION

Henry Ponder, Benedict College: I'd like to ask each of the participants about the system that they described. What is the cost of each system to one of the colleges?

James Welch, MIS/ISE: I would like for each one to answer that in terms of the package that he was selling.

Jack White, Optimum Computer Systems: I was describing the diagnostic and prescriptive system. I don't think any good salesman would say what the price is exactly. It depends on some other kinds of conditions. However, the present pricing of the system was not necessarily defined for the application to the learning environment of a college. It was designed more for a school system. We're currently pricing it out at approximately $26,000.

William Sutterfield: The Plantran System through Mid-West Research Institute has a number of variables. An individual situation depends entirely on what kind of equipment exists in the environment in which it is going to be used, how much training is involved and so on. Having made all those kinds of disclaimers, I will say that MRI has published a price, installed with training, and installed on equipment being able to handle it. I can't tell you the technical specifications, but at one time a published price was $9,100. I do know that in consortium installations where there is central installation, it came down to about $4,200 per institution and I think there were about three or four institutions. I would say you're looking somewhere between five and ten thousand dollars per institution, depending on a variety of factors.

Gary Gasmo: The National Center for Higher Education Management Systems which receives a lot of federal funding is not in the business to make profits. For that reason, each of the models are available with documentation for $50.00 per software package. I think a little more realistic figure of your cost to implement or to develop this capability is documented in the fifth document furnished you at this meeting. They estimated their cost at $200 or $150 for software and then I think a $5,000 expense for computer time in implementing the cost study and then about $10,000 for the people that were involved for approximately a year in developing the data and in implementing the system. There will be a document out of our office after the first of April concerning each of the consortium schools that had completed their report by Christmas or the first of this year. I think probably that would be more meaningful. I would have a little difficulty saying that this expense was typical or wasn't. That document will be a summary of what we did last year in the preliminary reporting and exchange procedures project. It shows for each of the participants what their expenses were for computer equipment, computer software and for the cost in personnel.

Ted Zaharchuk, Systems Dimension Limited: We are not a public agency. On the other hand, everything we produced is considered to be in the public domain, so copies of all documentation are available or copies of software items are available. But that's not reasonable because the nature of all these systems requires a fair amount of implementation of systems, so I would price the various items that I've discussed here. The CAMPUS model is available for something in the neighborhood of $25,000. That includes implementation, putting it up in a computer and a fair number of training seminars, data gathering at the college level. The total package of planning-management-evaluation system would be available, a three year program, for something in the neighborhood of seventy or eighty thousand dollars.

Henry Ponder: That brings me to my real question, which is: given the differences in prices how do we decide what system to use while having different persons coming in telling us the good things about their packages? How do you determine in your dealing with an institution the best kind of system for that particular institution? I think this is where we need a lot of help and I guess what I'm really wondering is can we depend on salesmen to really help us in that category.

Jack White: I would suggest very strongly that the institutions make use of groups like the one Jim Welch represents. As fair as I am, I'll tell you, I have a bias as to what you need, and one of the dangers, I think, any customer can get into is when he allows the outside consultant to tell him what he really needs, because what I'm liable to tell you, in spite of how honest I am, is that you need one of the systems that I have on the shelf. This may get you in more trouble and cost you two or three times as much to correct at some later point. But it's not just the correcting that's the problem. Once a system has failed in an environment, it becomes much more difficult to get the whole concept accepted by your own people so that if you come up with one that is good, the time that's going to be lost in just trying to get it implemented is not worth the bad decision of having an outside group tell you what you really need, unless that group is not going to be the one that is selling the package.

William Sutterfield: In my own institution, when I want to buy something in an area that I don't have expertise, I often have two or three contractors come in and I describe to them my problem. After describing the problem, I let them recommend what they would do with it. Then I take recommendations from several competing contractors and design my own set of specifications, because by now I've gotten a reasonably good education in the matter. Next I give all of these people who gave me their time and energy, my set of specifications. I then request some type of resolution. I've found that to be a reasonably good way to get a free education. The tuition is very low, it's the time I have to spend on it, but what I learn in the process is good.

Gary Gasmo: NCHEMS obviously has no sales marketing force. We have no salesmen that could visit the campus to sell the products we have. We're more interested also in developing the capabilities and judgment as to what you need in terms of planning systems or what approach you want to take, because you know your institution much better than we do. I am a member of the application and implementation unit within NCHEMS and our responsibility is first in providing service to interested parties, as well as performing a training function. We have a formal training seminar that we hold on the average of about once a month. Every other month or so, it's in Denver, and on odd months, we go out into the country to different locations. It's a two day seminar, and again the cost is $50.

During the training seminar, we try to expose the participants to the "state-of-the-art" of planning systems. We develop the RRPM, we develop the ICLM, we develop and talk about indirect costs and support costs within the institution and begin the first step in developing institutional capability. The training is what I would recommend if you're interested in developing some capability or competency within your institution and you're more or less starting from scratch and you want to expose people to what's going on in the world.

Ted Zaharchuk: I'd like to speak to you about this subject as a salesman. Speaking as a salesman, the one I don't want to implement is the one that's going to make me look stupid two years from now. In other words, I have a vested interest in providing a service that's going to succeed, because I hope that our firm's going be be around for a few years. That's a fundamental kind of self-interest that should operate for all long term salesmen or people who are interested in being around.

My advice to you on responding to salesmen, is to ask them two general questions about the product they're going to try to deliver.

First, try to find out to what extent they're interested in the nature of your institution as they're giving you their sales line. Try to find out the extent to which they want to either sell a package, one that exists and can be taken off the shelf and implemented in your institution easily, or the extent to which they consider a custom designed package or management consulting project that involves a great deal of input from you. That's a critical parameter.

The second parameter is the extent to which the salesman who is visiting you is going to be involved in the project if and when they get a project from you. If he is just out there selling and then moving on to another client, he doesn't have a vested interest in designing a proposal or designing an initial model or system that is really in your interest. That's my advice.

Defield Holmes, Fayetteville State University: I would direct my question to Ted in regard to his caviats. I have many questions here, but let me try to summarize by making a comment on some of the programs that I initiated.

You probably are familiar with the so-called Plato Program and the Texit Program. These programs are funded to the tune of about 10 million dollars and one million dollars is allocated to the Educational Testing Service (ETS) to evaluate these programs. Now, the statistics point out that there are now approximately one hundred thousand terminals in this country. In the next few years, they expect there will be millions of terminals and that is going to have some impact on our educational programs. Xerox and IBM have massive training programs and if they train the systems analyst, what is your obligation? What should be the obligation of your organization to the proper training of personnel? Who should be involved in computer work on the campuses in order that it will be initiated properly and effectively with minimum lag time?

Ted Zaharchuk: There are a number of answers to that. First of all, the primary responsibility of the consultant in bringing a package on campus is in the implementation of in-house personnel. Almost the entire success of that implementation will depend on the degree to which a commitment is developed on the campus to that operation and the right kind of human resources that are developed that can maintain that operation.

So speaking generally, there is a very large commitment on the part of the consultant to education of in-house personnel. I'm not sure that answers the entire question.

Defield Holmes: Partially, but in regard to planning, let's make some assumptions for the minute. They do have a Planning, Programming and Budgeting System (PPBS), they do have some planning capability, they do have access to Jim's MIS, so in regard to those resources, when you get involved with the personnel of the institution, how many people, what people, what critical mass are you going to deal with in order to get this package to the institution so that it can be utilized as quickly as possible?

Ted Zaharchuk: Virtually everybody in the institution has to be involved in the training program in the application of any system. Let's talk about PPBS, for example. That requires inputs if we're thinking of PPBS as providing information in planning, that requires an input from every constitutency in the institution and that requires a commitment on the part of everyone in the institution in the belief of the capabilities of that system. So the critical mass, in terms of the people who must be involved in the training program are 100%, everybody. The training seminars that we launch, would involve everybody, to greater and lesser degrees of intensity. Obviously, the major commitment in maintaining the system requires top level administrators and fairly intensive discussions with them. The degree of commitment, in order to keep it at lower levels of responsibility, would be diminished. I think I'm answering your question very generally. You'd probably like a more specific comment. I can illustrate in terms of what we're going to do for one particular client, that client being a set of 22 community colleges in the Province of Ontario, where we initially set up a CAMPUS planning model which was designed to be operated in each of those 22 community colleges.

That project has been operating for five years and promises to operate for a long time now. Going back to some of our accounts and some of our project data, we are spending over 30% of our budget on that particular project in continuous training and operations, and providing an opportunity for the members of the community colleges to share insights that can be developed out of the operation of the system. That's just an illustration.

Charles Teamer, Dillard University: I would like to address the first question to Mr. Sutterfield. I know that many of the representatives here today are with schools with enrollments of less than 2,000. In your experience, what would you approximate the annual cost at your institution to operate the PLANTRAN system?

William Sutterfield: Well, I'm not sure I can ease out of this question. I'll tell you why the question gives me a problem. I suppose we have a total commitment, occupying perhaps a fourth of a man year directly related to the use of the program. This is a critical point in that this system provides us with a quick mechanized way of doing something that otherwise would either not be done or would involve much heavier manpower commitment on the part of the institution.

So it isn't as if we are spending time into feeding this little system over here that is somehow independent of the institution. We're using the system as a tool of the institution. I really can't calculate a cost and I'm not really sure it would be relevant to say internally

it cost us $4,000 a year or whatever it is to feed the system, because the system is a tool. How much of your secretarial time in your office is punching keys on a typewriter? You don't calculate what it costs to get work out of a typewriter. You calculate what the typewriter cost and the fact that it helps you get your work done.

Charles Teamer: I don't think you're quite following my question. . . My question is that if you use the system you're referring to and you have obviously been using it, then you are adding a cost to your institution that was not there before. I'm not saying whether it's a good cost or a bad cost, but there's a cost factor. I think many institutions are concerned with the fact when a vendor approaches them regarding a new system, the actual cost involved in the system is not explained clearly, and the institution might find that the cost escalates very rapidly. I think that in terms of long-range planning, the institution needs to be able to have some idea of the cost involving equipment, personnel, etc., in estimating where they're going.

Now, the one rule of thumb that I've heard from computer people from time to time is that one should spend one dollar per student per month or something like that for computer time. I don't know if this is true or not. Maybe one of the experts would like to comment on that.

Another factor I've heard is that the cost for computer services should represent something like 3% of your operating budget. I wonder if any of you would care to comment on either one of these.

William Sutterfield: I suspect that the Plantran system I was describing is different from the other discussions we've had this morning in that it is not an integral part of the operation of the institution. But it's not a matter of suddenly putting everything you know about your institution into a system and then you're committed and there's no other way to handle it.

The Plantran is a stand alone system. It doesn't have any mechanical interface. The operation of the institution does not depend on that. It is a tool like a slide rule, so it's external. That's why I'm saying its not a maintenance cost in those terms.

In terms of who gets trained, there are different kinds of training. Anybody who's involved in decision making has to have some degree of sensitization. They need to be aware of it and hopefully it is a positive attitude or, at worse, ambivalent.

There are few people who need a high level of technical competence to make it work. The majority of decision making is done by leaders of one sort or another, i.e. president, deans, division chairman, faculty members and the like. So you need a general positive attitude. You need some high level technical expertise, very sophisticated technical expertise. Then the rest depends on style of leadership. It depends on our style of relating to one another. There may be some autocratic people who, for whatever reasons, are finding it effective. I heard our friend from SDL indicating a very democratic philosophy that everybody is involved and I can't disagree with that philosophy. As to how it operates, I think it depends on the style of the institution and how people relate within the institution.

Ted Zaharchuk: Let me comment, Charles, on your questi[illegible]garding cost. I think it's a very fundamental question. It's clear that if you develop a system or a management system, there are a lot of indirect costs that you should try to recognize or try to anticipate very carefully before you get involved in that kind of an implementation. Those indirect costs could cost many times the initial cost of the implementation. So the key is: first of all, to understand that there has to be a commitment to management information systems, there has to be a commitment to a set of systems that are going to provide a lot more data and improve decision making within the institution. The problem in defining precisely the mantime required to maintain the systems I'm talking about, relates to the fact that I gave a very comprehensive kind of general brief on the components. I can answer directly in terms of what would be required to maintain a CAMPUS type model at the institution exclusive of computer time, and that would be a half man year, just to maintain the data base. That can even be cut back a little further. The CAMPUS maintenance is integrated with the planning, programming and budgeting system, and as I mentioned before, as part of the PPBS procedures, the constituencies, the departments, etc. in the university are providing data which can be rendered into computerized data for CAMPUS. So that can be cut back a little more.

The one other thing I'd like to point out is that there is a great opportunity today for the use of consortia, various technical assistance consortia, such as TACTICS or ISE, such as the consortium that exists in Atlanta, for the implementation of management systems. Take advantage of the economics of scale, both in the management systems, the maintenance of computer hardware, the improvement of computer software, the provision of all the technical assistance required to build these systems. That's something that we tend to skim over because we are all vendors and we're all trying to implement our system, but you should think very seriously about that, in expanding the utility of that kind of vehicle for this kind of opportunity.

Rutherford Adkins, Fisk University: I think I really want to explore that kind of question. We have implemented products of the National Center, management tools which we have developed ourselves and RPM 1.6 is one instrument in a whole array of tools that we use, and I think it ought to be made clear that unless a device like this is seen as one element in an array, then you are underestimating the impact that it's going to have on the institution. That's why I want to explore a little bit further the question of what it takes to keep the thing going and to raise the question again with all of the vendors. All of these are models, and if the model is to be useful, it has to be a pretty fair representation of what is being marketed. All of you who are involved in the day to day activities or even short-range planning, know that a linear planning model is really a short-range planning model unless you have the capability to analyze the variables and the co-efficients and the linear equations upon which the model is built. And this analysis is not automatic in any of the models, and, therefore, this requires additional capabilities, a new type of staff member for the college, and it requires a new type of understanding on the part of the decision makers in the college.

That is, you can say, for example, that I'm going to increase the enrollment in a certain department by five students or ten students, but you cannot in truth say that I can increase

the number of faculty members in that department by a third of a faculty member. The system itself is not a linear creature.

So, my question then is: what in your experience has been the availability of analytic capability to institutions where they're being trained, how much does it cost and where should their locus be in the educational institution, if the model is going to provide the best possible input to the decision makers in that institution?

Ted Zaharchuk: First of all, the model is not necessarily linear in that procedures are built into the model to recognize and represent the fact that there are economics of scale and certain kinds of expansions and diseconomics of scale and certain kinds of expansions. I don't want to get too much into the detail of the actual model CAMPUS or RRPM, but it works on an activity type basis, and if you define for the model a particular course, it's constrained by the fact that the classes can only represent 35 students and the model will calculate new activities and will do a resource requirement based on that, so that it does in a sense represent economics and diseconomics.

Generally, the point you're making is that it's awfully difficult to do forecasts. What is really required is some kind of a vehicle, a form of discipline for people who are involved in the planning of an institution, so that they do make rational and reasonable estimates of their anticipations for the future. I guess that really goes back to my reason for trying to present an integrated kind of system where you consider PPBS as a decision making focus and you consider a computerized model as providing you with data or generating data out of that decision making focus, which will allow the most reasonable representation of future anticipations. It isn't possible to forecast the future really, but what we're trying to get is the best forecast available, given the most reasonable and most rational anticipations of the individuals within the institution. That's all we can get. We've all been involved in planning ventures where the man's reach far exceeds his grasp, and gross distortions occur. Everybody is playing a little bit of politics, every department head, every division head, would try to reinforce his own strength, his own position in the heirarchy through forecasts. But eventually, he's got to understand that those students are not coming as he had planned.

The other question you asked relates to the kinds of people who should be involved in the planning process, and I can answer that in many ways. First of all, in many universities, or most colleges that I've visited, there is a kind of a creative tension between the people responsible for business affairs and the people responsible for academic affairs. It's not always creative. Sometimes it's very destructive. If a system exists which provides a kind of language of analysis so that the business people can talk to the academics, using the same terminology and meaning the same thing, the tension would be reduced.

Where the planning model and where the planning focus exist between, on one hand the academic people, and on the other hand the business people, is a mute point. It depends on the nature of the institution. I know of a number of institutions where the business officer is very sensitive and well atuned to academic problems and he happens to be an excellent person on whom to focus the planning area of the institution.

I know of other institutions where the business officer is an accountant in all senses of the word, and if he was made responsible for academic planning, he would really blow the job. So the emergence over the past five or ten years of departments of institutional research are very important vehicles for the application of planning techniques and systems packages and the development of systems packages. The director of institutional research has a very special problem in establishing the right kind of credibility within the institution, so that everyone believes him, or everyone doesn't just sort of consider him some kind of freak who can generate data. So that's a very special kind of political problem. One way of resolving that problem is by selecting people for that role who are very sensitive both to academic and business affairs, and who have the tools and equipment to be able to successfully carry out that kind of job.

Gary Gasmo: Ted made a very good point about trying to identify within the institution from what point the planning responsibilities are focused. Another very important consideration, in trying to judge the expense of doing planning operations, is to assess to some extent the institutional health and how well the organization or units within the institution communicate with one another. We find that has a lot to do with what the expenses are. Where the business officer has difficulty in communicating with the registrar or where the academic vice president has difficulty in communicating with the business vice president. There are complications that occur and resulting costs that are associated with the planning operations.

If I may, I'll just suggest what we normally talk about when someone asks the type question Dr. Adkins asked this morning, where do we find an individual and who and in what office to centralize the planning responsibilities or the modeling responsibilities. I think our party line normally is to try to find—depending again on where the focus for planning is—an individual within the institution that has some analytic background in that he understands what a model is all about and conceptually how it operates. Typically in institutional planning, a staff position exists part of which would be and typically is for planning responsibilities and identifying who is responsible for the provision of the types of data that are required by the model. The extent to which the institution systemizes their data collection and their data requirements for the model has a lot to do with whether this individual is actually within the institution gathering data himself or overseeing those people he is responsible for in getting data collected.

What does it cost? I'd say some percent of one person in a planning or institutional research office who has the responsibility for identifying the sources of data and insuring that it comes in.

With regard to the linear capability that all of these models have, I think probably I need to say one word about this individual that we're talking about. It seems that our model, for one, talks or has a tendency to talk in the real number domain when it gets into the simulation mode. That is, it projects an institutional need for something like 75.35 faculty, and as Dr. Adkins said, it is difficult to hire .35 or .05 faculty members. The individual that is interpreting the results of the model to middle and upper level management has got to have this capability of going from the real number to the integer system, or at least talking in terms of part-time faculty or part-time students.

William Sutterfield: I'd like to add a comment about this fractional person. I think fractional people do exist. In the fall, I teach a freshman seminar and in the Spring, I teach a senior seminar, and my doctorate happens to be in higher education so I don't have a teaching discipline, but at the seminar at the beginning and end of the college program, the focus is on the college experience, so the discipline under discussion for my two-sevenths of a faculty load is the higher educational experience. We're finding less and less demand for languages and so rather than pushing a faculty member in language to get a doctorate which really may not be relevant to a small college that is essentially a teaching institution, I'm encouraging him to get a second Masters, so that he could fill a gap in our program in another area. So I agree generally, we have to take fractional units and mentally translate them into integers, but in fact fractional people do exist and I think it's up to us to use the imagination to deal with fractional people.

Rutherford Adkins: I'd like to rebutt both of those comments on the fractional person. It's not simply a matter of deciding I'm going to hire a part-time teacher or hire additional teachers. There are other options that have to be analyzed and a decision has to be made. Exercises can be increased, different modes of instruction have to be explored, all of these kinds of analyses which arise because new data is available places a new demand on the administrator. My point is that with his usual day to day activities, he is not going to have time to explore these alternatives himself.

Jack White: I'd just like to add one comment and I'll make it very quick. I find quite often that what we're talking about is clearly related to the organization's understanding of why they need it in the first place. If that hasn't been well thought through, then it does tend to become an appendage in which the cost has never been looked at. Options and alternatives to that installation have never been looked at until its already in, and then the analysis at that point is not whether we should get rid of it or not, but how do we keep doing something with it until it becomes what we want it to become. And sometimes the cost can range from 25-50% higher than it need be if some nitty gritty, getting together, planning had been done at the outset.

Henry Ponder: From the way these questions have been going, it seems to me that it was suggested that we need to have an outside consultant come in and help you handle the people. I'm not sure that I agree that we have done anything with annual cost. I don't know why it seems to be such a difficult question for people who are selling software because that's as fundamental a question as getting a computer to begin with. Now, you can't tell me that with all of the know how that you have, that you haven't crossed out what it's going to cost Benedict College to put in one of your units annually. Now if you had not dealt with that, I hope this conference says to you loudly and clearly that you need to go back and come in with some figures as to what it's going to add to Benedict's budget, not the cost of the machine, but to run it every year. And we're talking about how many people do you need to run this thing, what are the salaries that these people command, what about the supplies that have to go into doing the things that you're talking about? I think that somewhere we need to come to that.

Now, my question that I would like to ask at this point is: once you get into this, you're going to have to come up with some sort of contractual arrangement with the person who sells you this equipment. What are the kinds of safeguards that are musts for this to protect both the firm and the college? I'd like for someone to kind of list them, one, two, three, four.

William Sutterfield: The cost for Plantran installed on a computer that has the capacity to handle it is, let's say a flat figure of $9,100, because MRI has published that in the past. That includes professional personnel for about ten man days, but actually over about 2½ days at the outset. It includes some callback service, an unlimited opportunity for you to call in and ask specific questions. That includes the technologist to bring it up to install on your computer so it is running. There is also the guarantee that if there is any problem along the line, it will be taken care of in terms of its technical operation. This is the flat cost and it includes the training.

You can get a flat product cost, but when you're talking about the total cost of the resulting cost for having the Plantran on campus or whatever, I'm sorry, I respect your questions and your frustration, but I think you're asking some impossible questions, if you want just a flat dollar cost. Because what you're going to get out varies from month to month.

Henry Ponder: I think it's time for you fellows to do a little bit more homework and to come up with a direct answer to what it's going to cost and I think you can do that.

Ted Zaharchuk: I think the onus is on you to put us against the wall and to make sure that we specify (a) exactly what you're getting, (b) precisely how many resources in terms of mantime and who it is that's going into the implementation and (c) what it's going to cost you in the future. That's pretty hard to do, you know, and we try to avoid it as much as possible unless we're backed up against the wall.

Now, the second thing, I want to say and this is even more important. If I were you, I wouldn't buy a package. I wouldn't go out there and buy CAMPUS or RRPM or Plantran or any of those things, because no package is going to solve administrative problems. You've got to buy capability, which may include a package. This is the most important thing that I'm trying to say today.

Blanch Case, Phelps Stokes Fund: I haven't heard any of you mention what you do in your evaluation process to even come up with some kind of model. Could any one of you tackle that one for me?

Ted Zaharchuk: This is a big question and could take a little while. First of all, if we are coming onto the campus in response to a request to talk about a general information system as opposed to a CAMPUS model implementation, which we do 40% of the time, the rest of the time we do general implementations. Clearly, we have to spend a couple or three days on the campus and interview all of the senior administrators.

The second thing, as part of those interviews, we'd have to establish the organization's structure, who reports to who, etc., etc.

Thirdly, we would want to establish the kinds of flows of information that work within the system and kinds of evaluation data, the kinds of statistics that people are expecting to get as part of their everyday operation. That's a few brief steps that are involved.

Fourthly, there are just a lot of system variables that we consider, the size of the institution, and, as Dr. Ponder was talking about, the cost of the equipment. A lot of institutions can neither afford computer hardware beyond the minicomputer that you can buy for five or six thousand dollars or can afford the kind of connect facilities required to plug in a meaningful way to a service bureau or service utility. The most general thing I can say is that it requires two or three days of interviewing and discussing the problems of the institution, the nature of the organization, the way decisions are made.

Bill Henderson, Atlanta University Center: In reference to cost, I'd like to respond. There can be no fixed cost when involving the unpredictability of the human element that's involved in order to get the data. If people could be programmed, your costs would be reduced considerably. Organization and co-ordination are the key elements in providing data for any model. The question I have is what documented studies have been done in evaluating some of the packages described by the users as to their effectiveness?

Ted Zaharchuk: First of all, there is a very large figure of $500,000 for evaluation of the Ramp program that's funded by Exxon, and that's a resource allocation model program wherein quite a few systems have been implemented through Plantran etc., throughout the United States over the past four years. The project is managed by Alexander Astin. He's doing it through the University of California. So there will be a very technical evaluation through that particular program of all of the models that have been implemented.

Now, that will not evaluate the general integrated MIS management system, but it will provide you with some data on particular models.

We're having two conferences in Toronto, one on June 10th and 11th, a Thursday and Friday. The reason I mention it now is that in part the conference is going to be our loaded attempt to bring a lot of people into Toronto to discuss in very objective terms the problems that we've had in implementing CAMPUS type systems in colleges and universities in North America. We've called in a lot of former clients to give us their perspective on the problems they've had within their own organizations with all of the activities involved in planning through a CAMPUS or through an RRPM or other types of models. So this is kind of a general forum on evaluating the systems, and if anyone here would like to go to the conference, I'd be happy to send you a personal invitation.

Bill Henderson: What I was alluding to was the fact that in many instances, these models are implemented at the institution. I'm wondering, has there been any followup from the institution itself? Have you gotten any feedback?

Gary Gasmo: The consortium I was talking about earlier today which has about 60 colleges in the country, representing public and private institutions, were asked to produce documents on each of their systems, including the line item expenditures for the implementa-

tion, what they paid in terms of personnel and cost of supplies and other services. So, we've made some attempt to try to gather this type of data and I think that the other document that I referred to will be out later this Spring. NCHEMS will begin to display all of the costs for all of the participating colleges that implemented RRPM.

Ted Zaharchuk: Just one more thing, Bill. There is an association here in Washington known as the Council for the Advancement of Small Colleges and there is a project going on within that association actually evaluating the models.

Rutherford Adkins: I think the effectiveness depends on what you are going to make of it. We have used, for example, RRPM 1.6, as a basic tool to assist us in deciding faculty staff and level. It could happen, and in early runs it did happen for us, that the output of the model just sat on somebody's desk, and if that happens, then of course, it's of no value. If you don't make an effort to manage the institution in the way that you planned for it to go, then it's not going to be effective. It takes some time for this tool to integrate itself into all of the management tools that decision makers have. It has to be a conscious decision and committment on the part of the decisionmakers to use it as a management tool.

Marion Hayes, Cable Communications Resource Center, Washington, D.C.: I was wondering if any of these systems can be adapted to present systems on the campus. For instance, can they be tied into the closed circuit television system and if it exists, the telephone system. I was just wondering if you could now create a total communication system or are you continuously going to put new systems on the campus, so that you have a computer system that's really not compatible with some of the other systems present?

Jack White: Well, I chose not to talk about one of the planning models that the other members were talking about. I talked about one very specific little subsystem that was designed to fit into the total information systems that are there. I don't think it would be adaptable to closed circuit television at least not at this stage. We've only developed it to operate on line so that if the institution doesn't have a computer, it has access to a terminal that can be used, or it can be what we call batch process. The only way you can use it on closed circuit, I guess you'd have to have a camera. It's really not designed for that kind of an application.

Joshua Williams, Florida A&M University: Some of us are on state university systems and have things like Unitran systems, etc. and we can't purchase models, but we have a problem. How can we find someone that will come on the campus and get down to the head of a department and tell him the importance of getting correct software, someone externally that will come in and meet with perhaps all division chairmen and help them with the software. Because we have the system. It's dictated. It's passed down to us—but how can we get someone that can come in there and sit down with the heads of departments and tell him how important it is to feel out this software accurately? That's the kind of person we want to buy. Is he available?

Gary Gasmo: Our response is that he's already on campus. We feel that it's more important for an institution to develop these communication links between department chairmen and some planning office than it is for us to come in and tell him how the institution

should be run and for those institutions that are interested in developing that capability on campus, then we have these training seminars.

Jim Welch: We have become the victim of technology as one modern philosopher has put it but for the purposes of this informative exchange of ideas we have become the victims of time. I would like to thank each of our panelists for contributing their time and sharing with us their insights into management systems applications as they apply to educational environments. Additional information on the systems discussed here this morning are available through the MIS office or you may want to write to the vendor's represented here directly. I must point out here that we do not endorse any of the systems presented here at the conference. It is merely the intent of this conference to expose you to some of the current thinking in educational management circles as it relates to the mechanization and economic modeling being aimed at institutions of higher education.

SPECIAL INTEREST GROUP SESSIONS

HOW TO IMPLEMENT A DATA MANAGEMENT SYSTEM FOR YOUR INSTITUTION

Sondra O. Ferguson

Management Information Systems
Institute for Services to Education, Inc.

In order for institutions to survive, they must engage in efficient allocation of resources among alternative uses. A most fundamental characteristic for studying alternative courses of action which might be taken to achieve specific objectives is the establishment of a data management system for purposes of assessing resource optimization and the benefits or gains pertaining to the alternative(s) under consideration. The institution identifies through its objectives and goals the data base requirements that will be associated with each alternative policy or strategy necessary for mission accomplishment. The first important task is to discover through the process of goal analysis what is the available data from which realistic plans can be stimulated. Also, decisionmakers must keep uppermost in mind that good management of data is a major key in developing monitoring and evaluating models which will measure the extent to which a plan of action is successful or not.

In light of the data requirements needed to answer questions which are raised for the production of stated goals, there must be a period whereby these formidable goals are reduced to relatively manageable proportions. Thus, the nature of data requirements change to become more explicitly identified. Let me identify one process of fulfilling data requirements.

- Identify the data by category
- Determine source of data
- Develop appropriate data collection procedures

After the data is collected, it may be necessary to build a model to analyze whether this core information matches the requirements occasioned by goal characteristics. What may be necessary is that the entire data gathering process be examined for completeness and sufficiency. After definitive data elements are collected and prepared for reporting, a process for documenting and categorizing the obtained data should be conducted by the Institutional Researcher, MIS Chief Administrator, or someone responsible for collecting and reporting data within the institution. No matter what approach is chosen, a specialist's skills are required if one is to begin to make sense of the data assembled.

The challenge to goal analysis is to develop better ways of approaching the data management process and assigning alternatives to test the feasibility of the goal. Practitioners would

find it conceptually useful to observe a six step strategy that can effectively assist in determining desirable courses of action. Each question raised is closely connected with the definition of the goal criterion or criteria for choosing among courses of action in terms of goal attainment.

Step 1—*State your goal*
Example—*Develop a data base for your institution for research and planning*
Data Needs:
(Question)—What general information is needed for the data base?

(Data Category)	(Source)
Students	Registrar
Faculty	Academic Dean
Academic	Academic Dean
Physical Facilities	Business Office
Finances	Business Office
Other	Administrative Dean

Step 2—*Show a direct link between the goal and the needs of the institution*
Example—*The data base provides a mechanism for standardizing institutional operations via data definitions*
Data Needs:

(Data Category)	(Source)
Students	
Part-time enrollment	Registrar
Part-time by family income	Financial Aid Office
Part-time by Department	Academic Dean

Step 3—*How is the goal realized and what happens as a result?*
Example—*The data base would generate a strong communication level among the administrative offices which promotes cooperative effort toward planning and research.*
Data Needs:
(Question)—How would increased participation of the administrative offices affect planning and research?

(Data Category)	(Source)
Other	
Community Projects	Administrative Dean
Alumni Activities	Alumni Dean
Special Projects	Academic Dean

Step 4—*What is the minimum impact needed to indicate the goal has been attained to a significant degree?*

Example—*A centralized data base might eliminate duplicate reporting effort within the institution*

Data Needs:

(Question)—What are standard reporting requirements?

(Report)	(Data Category)	(Source)
Grades Report	Student Information	Registrar
Government Survey	Enrollment	Registrar
	Finance	Business Office
	Library	Library
	Employees	Business Office
	Degrees Granted	Academic Dean
UNCF Survey	Student (Geographic)	
	Degrees Granted	

Step 5—*What existing factors and trends could prevent the goal from being reached?*

Data Needs:

(Question)—What required data is unavailable?

(Data Category)	(Source)
Student by name	Registrar
Faculty by salary	Business Office
Income by private sources	Development Office

Step 6—*What existing factors and trends would make the goal attainable?*

Example—*The creation of administrative positions with the assigned responsibilities to contribute toward developing the data base.*

Data Needs:

(Question)—What are the administrative positions?

(Data by Category)	(Source)
Staff by job title	Academic Dean

After an analysis of each goal, the next procedure pointedly addresses itself to weighing intelligently the goal criteria in each step undertaken. Attention must be given to:

1. whether the goals are logically consistent or contradictory,
2. which goals have the greatest impact on the others,
3. which goals are effected the most by the other, and
4. how the goals would be influenced by current trends.

This task enables analytical treatment of any goal uncertainty based on the data base utilized. The answers to these questions can help to formulate PERT or CPM approaches for establishing development of approximate dates when goals will reach fruition.

A WORKABLE CRITERIA FOR DATA BASE MANAGEMENT

The ingredients of an effective strategy for data base management can be summed up in the following three tables. Obviously, a good many different factors have contributed to the successes of data base management, but our experiences at ISE suggest a well integrated approach, that is, that the pieces tie together as best they possibly can, or problems in the system are singled out to maximize payoff function. A practical way to develop a master strategy is to incorporate all elements found in Tables A & B. They provide both basic and distinctive points of inquiry that could strengthen the data collecting and management process. Probably, the greatest value encompassing the features of the enterprise depicted is the comprehensive, coordinated, and uniform posture involved. Table A identifies an excellent channel of communication across the institution's organizational units, and Table B offers vital guideposts for necessary information and if controlled properly, prevents piecemeal solution to institutional problems; directs and harmonizes the diverse forces where founded. Table C displays a sample for documenting the data base by individual data elements:

Data Element Name—this is the crystic code name including prefixes which identifies the data. (e.g. Total FTE Student Enrollment)

Data Element Description—the description give a more elaborate exploration of the data name. (e.g. the total FTE Student Enrollment includes total full-time students plus 1/3 part-time students enrolled at the institution).

Data Available—indicate whether data is readily available in report form.

Data Not Available—give the name of an alternate procedure to be used for collecting this information.

This item implies that a catalog of data collection procedures have been compiled which may be referenced for accessing certain types of inform. ion.

Data Source—should include the office, and even individual staff member responsible for inputting this data.

High Element Level—indicates what major categories include this data element. (e.g. full-time male enrollment indicates broader categories of total male and total full-time enrollment).

Lower Element Level—indicates a more detailed breakdown this line of data becomes. (e.g. full-time male enrollment may include classification such as full-time male freshman enrollment).

TABLE A

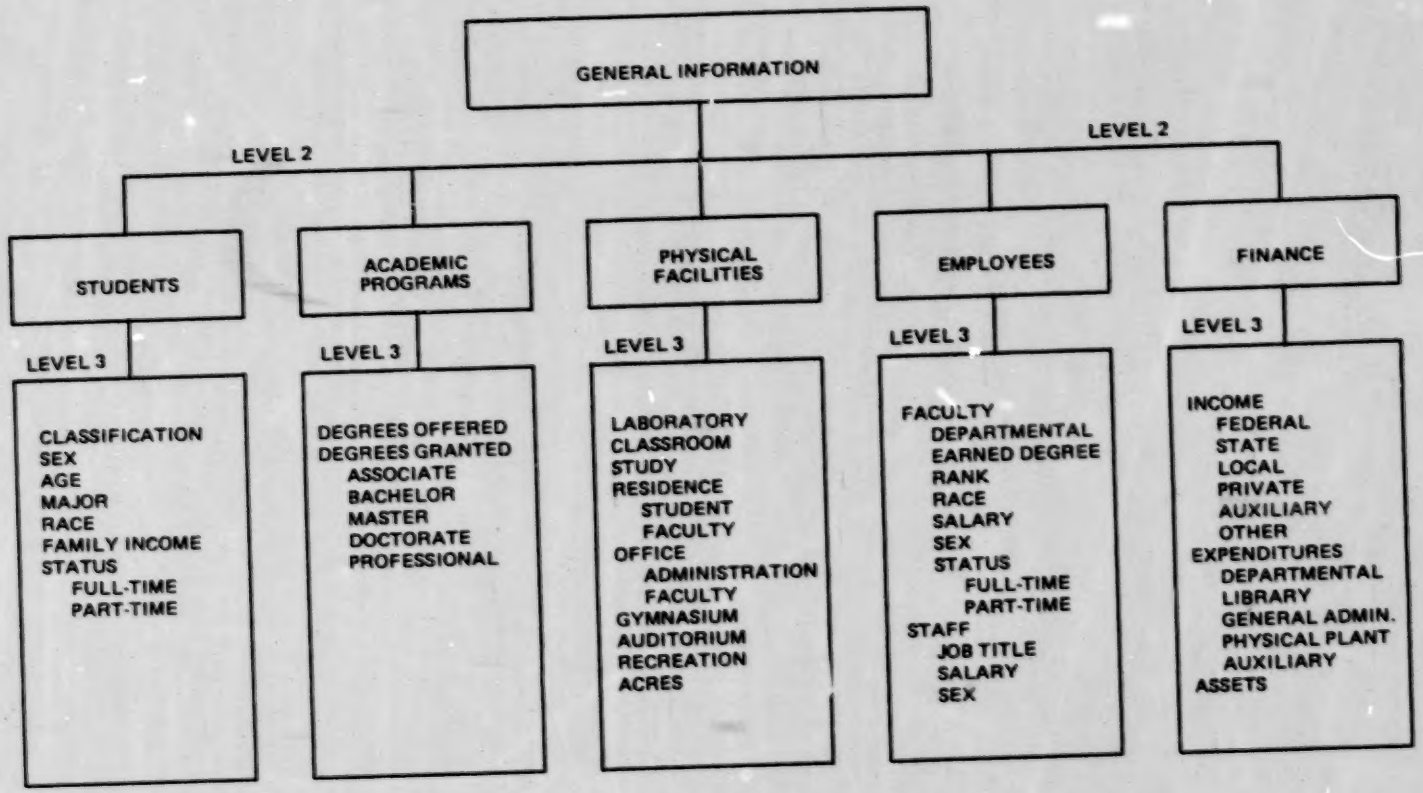
GENERAL INFORMATION
LEVEL 2
LEVEL 2
STUDENTS
ACADEMIC PROGRAMS
PHYSICAL FACILITIES
EMPLOYEES
FINANCE
LEVEL 3
LEVEL 3
LEVEL 3
LEVEL 3
LEVEL 3
CLASSIFICATION
SEX
AGE
MAJOR
RACE
FAMILY INCOME
STATUS
FULL-TIME
PART-TIME
DEGREES OFFERED
DEGREES GRANTED
ASSOCIATE
BACHELOR
MASTER
DOCTORATE
PROFESSIONAL
LABORATORY
CLASSROOM
STUDY
RESIDENCE
STUDENT
FACULTY
OFFICE
ADMINISTRATION
FACULTY
GYMNASIUM
AUDITORIUM
RECREATION
ACRES
FACULTY
DEPARTMENTAL
EARNED DEGREE
RANK
RACE
SALARY
SEX
STATUS
FULL-TIME
PART-TIME
STAFF
JOB TITLE
SALARY
SEX
INCOME
FEDERAL
STATE
LOCAL
PRIVATE
AUXILIARY
OTHER
EXPENDITURES
DEPARTMENTAL
LIBRARY
GENERAL ADMIN.
PHYSICAL PLANT
AUXILIARY
ASSETS

TABLE B. MIS DEVELOPMENT PROCESS: Principal Operating Units to be Surveyed

Academic Administration

- Academic Dean
- Registrar
- Counseling Center
- Library
- Research & Evaluation
- Testing Services

Business & Finance Administration

- Business Officer
- Personnel Services
- Physical Plant Officer
- Security Officer

Institutional Planning

- Alumni Officer
- Development Officer
- Institutional Research
- Planning Officer
- Public Relations

Student Personnel Services

- Admissions & Recruitment
- Athletics
- Chaplin
- Dean of Students
- Financial Aid
- Food Services
- Health Services
- Placement

TABLE C. MIS DEVELOPMENT PROCESS: Data Element Status Report Layout

Data Status System by School
15 July 1974

Data Element Name _____

Data Element Description _____

_____

_____

Is Data Available? _____

If Not Available, Name alternate data collection procedures _____

_____

Data Source _____

_____

Higher Element Level _____

Lower Element Level _____

A NEW CURRICULUM PLAN FOR AN OLD COLLEGE

Gordon W. Robinson
Director

Institutional Research Division
St. Augustine's College - Raleigh, North Carolina

This afternoon I would like to consider with you a recent development at St. Augustine's which I think will affect the thinking of future needs for the small black college. At St. Augustine's, we are developing the Allied Health Program. This program was begun at the college in medical technology without additional faculty in the Division of Natural Science. As one of the life sciences, it was administered under the Department of Biology at the college. Before this program came into operational focus, it was necessary for the faculty council on curriculum to:

- Convene at various times to exchange ideas and get input.
- Present to the entire faculty for discussion, suggestions for additions and deletions (the Academic Dean presided over these meetings).
- Present to the President of the College refined and mutually agreed upon recommendations.
- Receive suggested changes from the President after his reading of the report.
- Resubmit the report to the President for presentation to the Board of Trustees.

Students from the biology and pre-medical divisions were among the life science majors whose interest was most keen about the Allied Health Program. Department heads and staff carefully assessed what was needed in the way of staff, space facilities and equipment. A cooperative arrangement with North Carolina State University was established to strengthen staff capability and the programmatic thrust of the new program.

In order that we may understand what is involved in getting a program like this off the ground—let me discuss key elements in the exploratory development scheme.

The college's primary aim for venturing into this pre-medical program was initially predicated on the substantial lack of doctors—especially black doctors who face insurmountable odds when they apply for medical school. As a small black institution, we are constantly

concerned with the scarcity of trained blacks in the medical field who render service to blacks, especially in rural areas where thousands go without the slightest of medical attention. We all recognize that 75 percent of black medical doctors come from Howard University and Meharry Medical School and that this unfortunate history must change. These are the emotional bases for the college recognizing a need to strengthen the curriculum, but the prime objective of my research exercise was to advance statistical and socio-ethnic observations necessary for the promotion of the proposed project.

The Institutional Research Division discovered that during the school year 1969-70 the total number of allied health graduates in all professions was 21,880. Of this number, 332 or 1.52% received degrees from black institutions. Data on the number of degrees awarded in allied health professions for 1971, 1972, and 1973 was not available from the National Center for Educational Statistics, but through other sources, the picture looks like this:

- 256 degrees in Allied Health were granted by Black institutions in 1967
- 303 degrees in Allied Health by Black institutions in 1968
- 326 degrees in Allied Health by Black institutions in 1969
- 332 degrees in Allied Health by Black institutions in 1970

While this data does show slight increase in the number receiving degrees, this increase is infinitesimal in terms of the population expansion of blacks. Evidence has been gathered to show that mainstream advanced institutions are granting thousands of degrees to allied health professionals. The information cited here was excerpted from statistical data by the National Center for Educational Statistics.

Total Bachelors Degrees Conferred in Black Colleges and the Nation

	Biological Sciences		Health Professions	
	Black	U.S.	Black	U.S.
1966-67	964	28,950	256	16,041
1967-68	1,073	32,055	303	17,571
1968-69	1,185	35,556	326	20,004
1969-70	1,133	37,676	332	21,880

In the realm of socio-ethnic needs, the data base of our Institutional Research Division points to the technological advancements in health fields, the increase in demand for a broad range of health services, and the broadening of the life span of American citizenry which will result in an increase of the number of senior citizens in the population. The new emphasis on improving the quality of health and delivery of health services to all people has resulted in a great need to increase the number in national health manpower pool of well-trained medical professionals in the allied health fields. Our records show that there is one white physican for every 5,000 black persons. As a direct result of apparent shortages, more black

people die more frequently from curable diseases while others are cured. Prudent observation indicate that black health professionals are most likely to be the persons who will deliver health services to black people. It is, therefore, apparent that if alarming and shockingly poor health conditions generally found in black communities persist, black people will have no choice but to rectify the situation themselves.

Thus, we have the major support information, or the development of an information package for seeking what might be a feasible solution. The college through its Science Division, keenly aware of the need for allied health personnel and the concomitant responsibility for recognizing, recruiting, training, retaining and counseling sensitive individuals whom it feels have the potential for developing into allied health professionals developed a plan-of-action.

Major program designs are to identify, recruit, train, retrain and counsel minorities in secondary schools (10th, 11th and 12th grades) and freshmen, sophomores, juniors and seniors at the college level who have the potential for absorbing competencies in subject matter and psychomotor skills in behavior for development into allied health background. Their interest would make it reasonable to assume that they will serve in small areas where there is a dearth of helath services for the population. The College is seeking funds to support the development of a training center for careers in allied health professions to the tune of $2,223,975. Through the proposed health center the College plans to graduate well-trained allied health professionals. There are 34 students in the program as it exists now.

The management plan for the allied health proposes that:

- By September 1974 to identify 50 students at the tenth grade level who show high potential for becoming health professionals.
- By September 1974 the College plans to actively recruit 50, 11th grade students and involve them in a summer workshop in 1975.
- By 1975 students will be in didactic training in an affiliated hospital.
- By 1976 students will be more intensively involved in didactic training with an affiliated hospital.
- By 1977, students in the program will exhibit high competencies and skills as they work in hospitals.
- By 1978 Saint Augustine's will have 200 students actively participating in the program with 50 doing clinical studies at hospitals and medical schools of allied health and 150 at the College as freshmen, sophomores and juniors.
- By 1979 the students in the program now (34) will have become health professionals.

- By June of 1979, the first 50 students in the program will have graduated and become allied health professionals.

- By 1979, Saint Augustine's will have become affiliated with 10 additional hospitals and medical schools to insure clinical places for didactic training for the increased number of students in the program without interruptions.

- By 1979, Saint Augustine's will have added faculty members with competencies and teaching strategies for maximum learning.

- By 1979, the College's faculty in allied health will have improved their quality of teaching allied health students by attending summer workshops (1974, 1975, 1976, 1977, and 1978 and 1979) and conferences.

- By 1979, the College will have developed a quality curriculum for the training of allied health professionals.

- By 1979, an on going, self-sustaining allied health center will have been established at Saint Augustine's College.

- By 1979, the College will be graduating 50 students a year in allied health.

Implementation of Allied Health Program—A St. Augustine's management team proposes to implement the program in five phases.

Phase I: *Identifying students with high potentials for becoming doctors.* Identify at the 9th and 10th grade level those Black, economically and culturally deprived students who show by attitudes, desires, competencies and skills that they have the potential for success in a rigorous pre-medical and allied health curriculum at Saint Augustine's College.

Phase II: *Recruiting and Training 11th Graders.* Once these students have been identified, the College will actively recruit them. It will then give them intensive training in a six-week summer workshop designed to enhance their basic knowledge and skills in word usage, mathematics and chemistry in the Summer of 1974.

Phase III: *Training and Retention of 12th Graders.* The students so elected will enter into the training period at the end of their 11th grade. They will be counseled and advised strongly to stay in the program. When the student has finished, Saint Augustine's will place him in didactic training at a cooperating hospital or medical college.

Phase IV: *Retention and Counseling.* In the Fall following the Summer of clinical training, the students will matriculate at Saint Augustine's College as pre-medical and/or allied health majors. They will remain in school, for two semesters and follow this with a Summer of intensive study in science, readings, humanities, mathematics and bio-chemistry.

Phase V: *Developing Competencies and Skills (Sophomores to Seniors).* Skills with their bases in problem solving, reading communication, chemistry, physiological principles, micro-biology and human beings are required for success as health professionals.

In summary, I have simply tried to touch on key managerial elements of our Allied Health Program. I cannot leave the subject without emphasizing the importance of organizing the format and delivery of information in an interesting and manageable way. When we proposed something like an Allied Health Program we're talking about reformulations in values, student life styles and outlooks, work orientations, and academic disciplines. Only with a good data base can your management system work.

A SYSTEMS APPROACH TO CURRICULUM DEVELOPMENT

Roosevelt Calbert, Director
Joel Nwagbaraocha, Associate Director
Cooperative Academic Planning/TACTICS Division
Institute for Services to Education, Inc.

We are here today as a missionary for the concept of the systems approach to academic planning. Unfortunately, the word "system" has many meanings, but for this discussion, a system is simply an assemblage or combination of things or parts forming a complex whole. The basic issue to be raised at this session is that academic planning and curriculum development at colleges and universities require systematic means of collecting, organizing and sharing relevant information.

There are three objectives of this session. The first is to share the services and activities of the Cooperative Academic Planning Program of TACTICS. The second is to highlight implications of non-academic administrative efforts to problems of academic planning and curriculum development. The third is to emphasize the need for collaborative academic planning among college/university administrators, faculty, and students via systems analysis approach.

The paper presented at this special interest session will deal with generic academic planning constructs needed for a systems analysis approach to academic planning in higher education. An attempt will be made to delineate a conceptual framework within which relationships of a college's academic operations can be viewed as a coherent system.

More specifically, efforts will be made to point out that the systems approach to academic planning underscores:

- An approach whereby key college academic problems can be stated in a form appropriate for mathematical analysis
- A backup for a selective process in academic programming
- An appraisal and comparison of various academic divisional/departmental activities in terms of their contributions to the over-all educational objectives of an institution
- A determination of how given academic objectives can be attained with minimum expenditures of resources
- A projection of innovative academic activities over an adequate time horizon

- A comparison of the relative academic contributions of all academic areas of the institution, and

- A revision of objectives, programs, and budget in the light of experience and changing circumstances

The presentation will surface the need for a logical analysis of institutional academic structure which emphasizes the systematic application of the elements of efficiency and effectiveness in academic planning.

WHY THE SYSTEM APPROACH IS NECESSARY FOR EDUCATIONAL PLANNING

Perhaps never before in history has higher education faced a greater number and intensity of institutional pressures,both from inside and outside the educational structures. In fact, these stresses are so great that the very survival of many colleges and universities is at stake. Problems can no longer be shrugged off today in the hope of finding plausible solutions in the future. Evidences show the insurmountable sins of many years of omission and procrastination. That period of time whereby institutions could exist in spite of themselves has simply run out.

It is probably not feasible to assess every crisis or pressure that has confronted higher education during the past few years, however, some of the major concerns/pressures have included the following:

- Colleges and universities have been in general faced with a growing campus population. Estimated figures show that between 1960 and 1970, the total college and university population enrollment more than doubled from 3.5 million to over 7 million. While it is true that some colleges and universities have experienced some decreases in enrollment during the more recent past, the overall enrollment trends over the past decade have been upward. These changes in enrollment trends have spawned other issues regarding changing student attitudes about the goals and objectives of a college education.

- Closely accompanying the changing enrollment has been the pressures of rising costs including both operating and capital costs. Unfortunately, inflation is affecting all aspects of higher education.

- There are demands for increasing academic production at the colleges and universities in an effort to reduce costs. This development is causing institutions to reassess policies on a sabbatical leave (e.g., should they be cancelled); to consider increasing class sizes and/or student-teacher ratios; to reassess the cost of athletic activities and a possible reduction in these programs; and to consider the deferment or consolidation of new building functions and construction. University personnel are being asked to not only identify the various input costs of running a college or university, but also to exhibit the output and assess the relationship between the output and input and how one can get from one to the other in the most efficient way. This is a tall order!

- Because of rapidly shifting manpower needs and certain court decisions, there is a pressing demand for new or expanded academic programs on many campuses.

This demand is also caused in part by developments in the areas of health science, defense, urban affairs, energy resources, and environmental awareness.

- Colleges and universities are besieged by students' search for relevance. This has been particularly true at many of the predominantly black colleges with regard to social policy. Implications are that not only must there be relevant programs put into place but these programs will demand new and imaginative ways of teaching. Methods will have to be employed whereby students must accept a great deal more of the responsibility for their own learning level and learning rate.

- Another issue confronting colleges and universities today is that of *accountability*. The public is becoming more and move vocal and repressive on matters involving higher education. This is especially true when the cost of today's education keeps rising. The public wants to know if a teacher puts in a full day's work for a full day's pay.

- A shift from the institutional-based financial aid programs to student-based financial aid programs has caused a considerable amount of consternation on the colleges' financial outlook. This trend may change the entire pattern of recruitment and the colleges and universities will have to devote more effort in developing sophisticated schematics to enhance the managerialization of higher education without sacrificing certain professional images. Innovative decision-making processes will have to be identified and made responsive to the changing patterns of effective college management.

In response to some of the new and continuing pressures, many colleges and universities find themselves engaged in sessions to re-examine and/or re-assess the institution-wide planning procedures. These sessions are in turn revealing that there is indeed an absence of comprehensive institutional planning as an ongoing process. This consequently imples that *each* college or university must begin to evolve a systematic planning model which should be geared toward addressing unique problems as identified by the individual institutions.

Any model that an institution may decide to use should contain some general attributes that are germane to any good planning scheme. These general attributes include:

- The realization that a college or university is composed of a system of components which are so interrelated that a change in one component either directly or indirectly affects the progress of the others. Some of the basic functional organizational components include a governing board, administrators, faculty and other staff members, students, alumni, and community resources (human and other). One chief concern will be the assignment or designation of well defined decision-making responsibilities for each component and/or test group.

- The comprehension that institution-wide planning must be continuous. Whether one deals with long-range, intermediate-range or short-range planning, there are really not any sharp cut-off points where one kind of plan must end and another begins. This means, of course, that one must have ongoing sources of reliable institutional data that are readily accessible to the task groups.

- The identification of administrative officers who can delegate certain responsibilities and make cogitative final decisions and recommendations. Subsequently, each officer's duties and responsibilities should be clearly specified and guidelines for accountability should be firmly established.

- The awareness that the *educational program* is the principal focus of the planning process. Educational planning, by virtue of the fact that this is why the institution exists, penetrates the very core of the planning for fiscal matters, physical facilities, physical plant maintenance and projections and other related functions. Furthermore, one must be able to delineate those variables that are relatively uncontrollable by the institution such as population trends, social conditions and economic levels and incorporate these into its capability to meet societal needs.

- The cognizance that the study of management information systems is not the study of computers. It is the comprehensive construct of how the educational institution communicates, analyzes and processes information that can maximize the effectiveness of the organizational procedure and assess the attainment of management objectives. Computers, on the other hand, do help speed up the analysis and flow of large quantities of institutional data at a fairly reasonable cost. The utilization of informational systems shifts the basis of programmatic development and influence from dominating power demands to rationales based on competency, knowledge, honesty and human commitment. In other words, the use of an information system lays the foundation for doing the right things that satisfy the needs of the institution, the students, and the community.

This objective approach also requires the flow of communication across many of the compartmentalized components of a campus and thereby strengthens the comprehensiveness of this ongoing process. Involved in this process will be the coordinating, collecting, analyzing, disseminating, storing, and retrieving of all pertinent institutional data to the various campus segments.

The use of external consultants during the initial stages of initiating an informational systems project often helps sustain an atmosphere of objectivity and creativity. Consequently, this allows time for an on-campus staff to develop its capabilities to apply sophisticated managerialized operations to the needs and goals of the institution.

CHANGING ROLES IN THE SYSTEMS APPROACH PLANNING PROCESS

One can easily identify many changes in today's economical, social and moral attitudes and societal practices as compared to those of a decade or more ago. College or university academic and administrative structures are, on the other hand, very conservative with respect to change and especially those academic structures that are above the freshman level.

Traditional planning roles for the administrators centered on dealing with institutional developments such as the physical and fiscal problems while the faculty members centered their attention on being the protectors of the departmental and professional concerns that related to academics and never the twain should meet. Students, similarly, were simply the recipients of the institutional "goodies." They, the students, were at best passive players in helping to determine the role and scope of their intellectual, economic, and social planning schema.

The state of affairs for institutional planning may have remained static had not it been, as stated before, for the demands of the present and future that call for comprehensive institutional planning processes that would involve all of the existing constituents on a college or university campus as participating components. In view of this new approach to planning, each college or university must concern itself with the evolvement of a realistic systems approach model that can address all facets of its qualitative and quantitative planning needs.

On-campus planning committee representation should therefore consist of representatives from the administration, faculty members, non-instructional staff members, and students. In addition, alumni members and other community resource persons should be represented on the planning committees. These committee members plus the seven members of the institutional research office could form the basic organizational planning structure for the institution.

Regardless of the system model that an individual college or university may choose, there are certain fundamental phases that will be evident in one form or another. These phases include:

- An Initiation Phase
- An Input Phase
- An Operational Phase

- An Output Phase
- An Evaluation Phase

The Initiation Phase. This phase involves the identification of planning variables such as economic and cultural factors in addition to other geographical and physical facilities concerns. Other variables that are considered include student and staff related data such as profiles, enrollment, financial status, etc.

The Input Phase. This phase goes into operation after the delineation of the information from the initiation stage. Long-range planning strategies are made operational and the institution sets its course for meeting current demands and specifying future projections. Institutional goals, objectives, and mission are clearly defined.

The Operational Phase. The main purpose of this phase is to develop and implement operational managerial plans for attaining the goals, objectives and mission of the institution. A coordinated management system is tested and analyzed by internal and external planning consultants.

The Output Phase. This phase signals the initial assessment of the programmatic aspect of the planning construct. Alternative plans are considered and/or designed for achieving realistic goals.

MAJOR ELEMENTS IN THE EDUCATIONAL INPUT-OUTPUT PROCESS

A dominant input-Conversion-output process for the primary task of education generally considers students as intakes, teaching/learning as the activities of the conversion systems and those who have learned, or have failed to learn, as outputs. Resources required for task performance are teachers, appropriate buildings and equipments. The measure of the productivity of the system is the difference between intakes and outputs, usually symbolized by the award or non-award of a degree or diploma.

Figure I illustrates the dominant input-Conversion-output process in an education system for the primary task of teaching/learning.

INPUTS

Inputs (Financial and Non-Financial Resources of an Educational System)

Personnel Employed

The number and type of positions required for each institutional area and the average salary and workload in each of the following positions:

(a) Professors (full, associate, assistant)
(b) Instructors
(c) Lecturers
(d) Teaching fellows, graduate assistants
(e) Administrators
(f) Secretaries
(g) Librarians
(h) Building and ground workers

Students

The number in each of the instructional programs, including full-time and part-time (stated e.g. full-time equivalent)

Class Size Ratios

The average class size for each of the instructional programs

Instructional Courses

The number and description of the courses in each of the instructional programs

Supplies, Equipment and Furnishings

An inventory of materials and a listing of items requested to be purchased for each of the programs.

Physical Facilities

An inventory listing the number, square feet, and utilization of classrooms, offices, laboratories and libraries.

OUTPUTS

Degrees

The number and type of degrees granted

Degree Courses

The number of students in each major and elective course. The number of student credit and class hours provided.

Library Growth

The number of volumes in the library

Research and Scholarly Publications

This must be expressed in terms of research grants and research publications

Contributions of the Institution to the Community

This must be expressed in terms of lectures (evening colleges), cultural events, art exhibits, and urban and community projects.

Standardized Test Results

Performance of the students on standardized tests given in the freshman and senior years and on graduate admissions tests

Graduate School Admissions

The number of seniors admitted to graduate schools

Alumni

Questionnaires filled out by alumni giving a personal history after receiving their degrees, listing positions, salaries, participation in community affairs, graduate studies, and their evaluation of the institution

Institutional Evaluation

Evaluations of programs by college/university accrediting associations. Self evaluation by college and university committees.

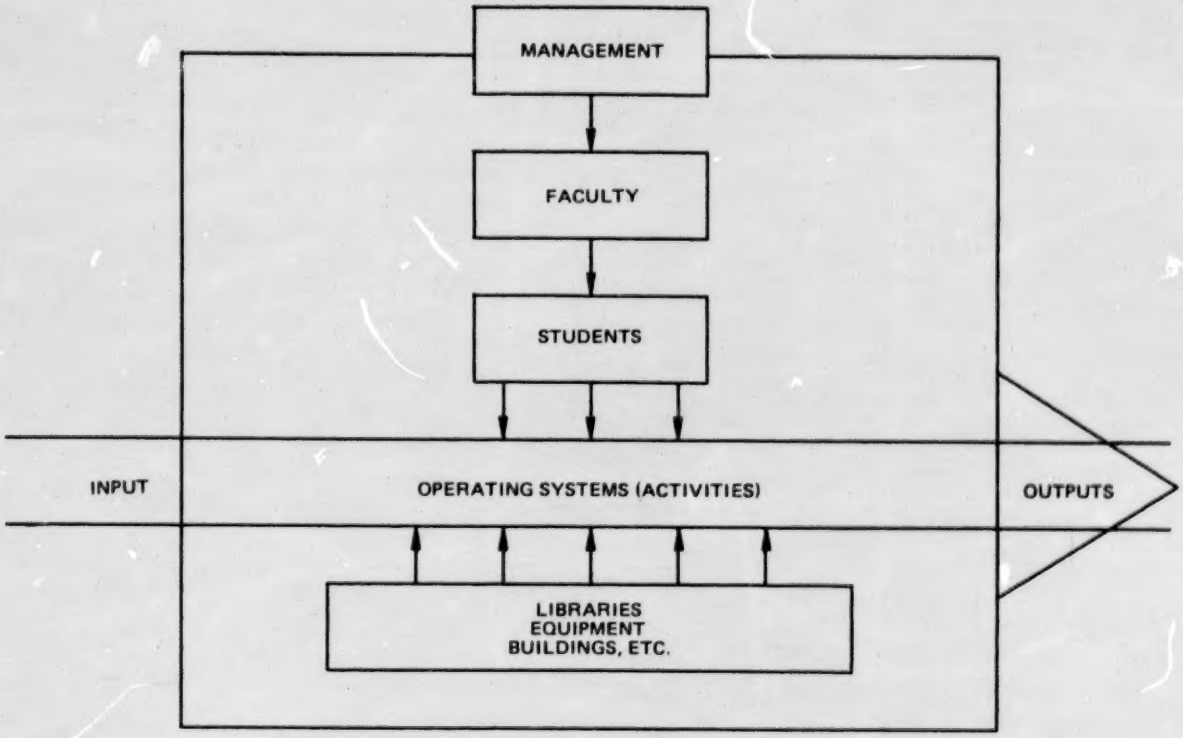

Figure I. Input-Output Process—[A Task System and Its Boundary (Input-CONVERSION-Output Process) Function]

THE PROCESS OF INSTITUTIONAL ACADEMIC SYSTEMS ANALYSIS

The systems concept does not provide a set of rules for solving educational problems, but it does help to establish a logical system of analysis based upon the identification of major and minor variables key to the process. Attention has already been called to the input-output phenomena from the manager-educator viewpoint and now the implications of that process must be operationally depicted. Figure II is a block diagram showing an integrated assembly of interacting elements designed to achieve through a concerted effort a high degree of performance on the task at hand. It includes all the relevant aspects of the system environment that are fundamental to the process of systematic academic planning.

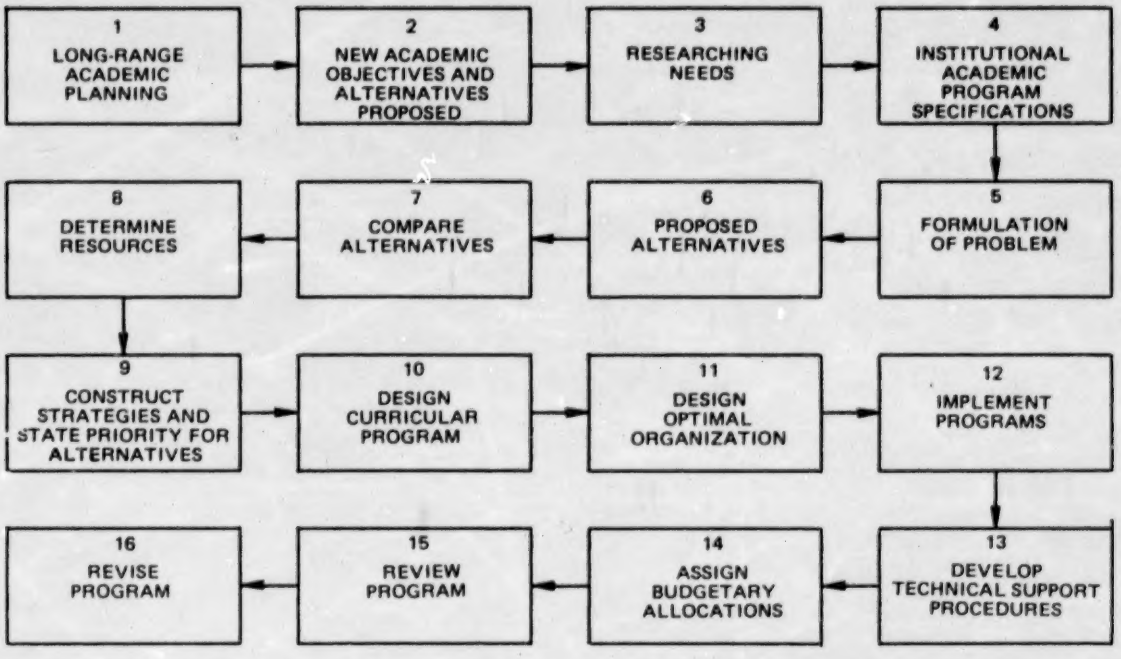

Figure II. Process of Institutional Academic Systems Analysis

SEQUENCE OF EVENTS IN THE PROCESS OF SYSTEMATIC ACADEMIC PLANNING

1. Long-Range Academic Planning
   - Plan for the future
   - Study forecasts
   - Consider the "ideal" academic program
   - Formulate optimal model
   - Critically examine existing assumptions
   - Establish long-range goals
   - Devise annual planning calendars
   - Encourage formal and informal planning
   - Develop five-year plans
2. New Objectives and Alternatives Proposed
   - Strategic planning process
   - Relate proposals to institutional objectives, resources, and changes in personnel
   - Maintain unity of system amid diversity of programs
   - Employ research and development aids
   - Reset objectives
   - Institutional review should be emphasized
   - Design scenarios

3. Research Needs

- Examine existing academic departments/divisions
- Evaluate changing needs
- Specify assumption and propositions
- Review social behavioral perspectives
- Apply the "system approach"
- Detect discrepancies between professed and operative values
- Encourage creative needs identification

4. Institutional Academic Program Specifications

- Construct a model of the present (institutional) system
  - Structural design and components
  - Inputs, outputs, boundaries
  - Explicit goals and desired outcomes
  - Operational educational philosophy
- Devise a management construct
  - Develop plans from objectives
  - Determine schedules for these plans and activities
  - Estimate time for completion
  - Initiate action
  - Identify trends and focus of power

5. Formulation of Problem

- What is the academic problem(s)?
- Select appropriate level of analysis of discourse
- Use planning strategies
- Formulate interim objectives
- Identify attributes and constraints (physical, legal, distributional, budgetary, etc.)

6. Proposed Alternatives
   - List all academic options
   - Devise new strategies
   - Review related research and innovative practices
   - Construct action designs
   - Consider corrective action
7. Compare Alternatives
   - Evaluate academic criteria
   - Anticipate consequences of each course of action
   - Relate to desired outcomes
   - Compare analysis of costs and objectives
8. Determine Resources
   - Estimate all available resources
     - Financial
     - Human
     - Buildings and materials time
9. Construct Strategies and State Priorities for Alternatives
   - Place all alternatives in order
   - Hierarchy depends upon technical evidence, personal preference and feasibility
   - There is no allowance for tuition
   - Document analysis
10. Design Curricular Program
    - Conduct academic program identification resource
    - Define programs to accommodate a program budget
    - Modify traditional curricular approaches

- Encourage active faculty participation
- Develop flow charts for each academic area
- Develop academic program structure classification

11. Design Optimal Organization
    - Determined by instructional objectives, consult research in the area of administrative and organizational theory
    - Consider all variables, that is, roles, interpersonal relations, policy participation, flexibility, innovation, climate, informal structure, student needs, cohesion, the "organization ethos," etc.
    - Construct a formal organizational chart
        - Participatory decision-making
        - Reduce unilateral decision-making
12. Implement Programs
    - Teaching-learning process
    - Curricular differentiation
    - Instructional support functions
    - Adaptive, maintenance and productive phases
13. Develop Technical Support Procedures
    - Management sciences
        - Quantitative analytical tools
        - Operations research
        - Cost-benefits research
        - Computerized information models
        - Provide feedback, monitoring
    - Electronic data processing
        - Data flow-plans
        - Record keeping
        - Data banks
    - Design administrative reports

14. Assign Budgetary Allocation

- Appropriation of resources
- Program budget
- Financial planning procedures
- Cost analysis schedules
- Cost accounting procedures
- Budget performance criteria
- Economic rationality
- Compare unit costs with present
- Cost standards of performance
- Quality controls

15. Review Program

- Formal review at stated time intervals
- Informal continuous review
- * This process makes the system dynamic
- Program changes are encouraged
- Comprehensive diagnosis of system performance
- Encourage debugging of original systems design
- Task analysis

16. Revise Program

- Make necessary changes in program
  - Add or delete activities
  - Consider transition steps
- * Back to the drawing board

Figure III shows institutional organization for academic planning. It depicts the internal environment necessary for performance and the constraints and influences that have significant impact on the operations and effectiveness of sound academic planning. The chart does not indicate the number and kinds of persons to work/serve in each component, but the recruitment of diverse committee members is a critical factor in determining the success of the systems approach to academic planning.

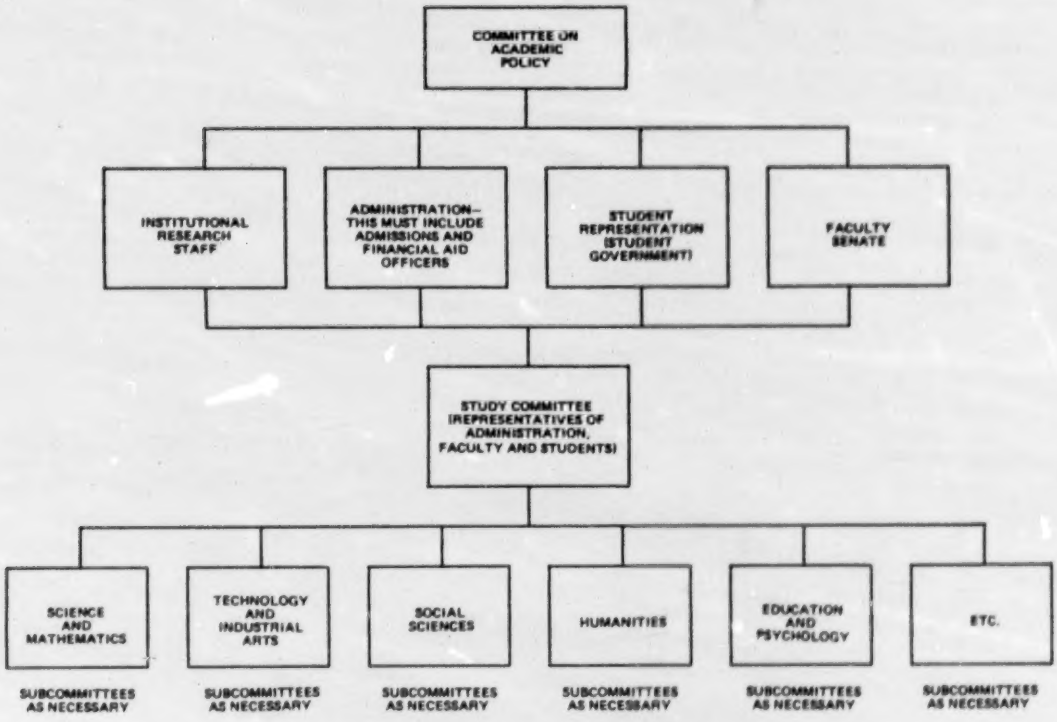

Figure III. Institutional Organization for Academic Planning

DEVELOPMENT OF AN ACADEMIC PROGRAM

A flow chart that describes the steps in the development of an academic program is shown in Figure IV. This is presented as an overview for making a careful analysis of all that is involved in a prudential approach either to comprehensive academic planning, or for that matter, to the development of a more narrow, specific and limited approach. Figure V gives more detailed processes of institutional planning. Models like these may appear to be so directive and inviolate as to "turn off" many persons who may take what they term a more humanistic approach to policy determination. The mood and tone, however, are set by the context of the planning, by the factors that motivate it, and by the nature of the broad supervision and policymaking approach to academic planning. Effective communication processes are vital to the success of planned academic change.

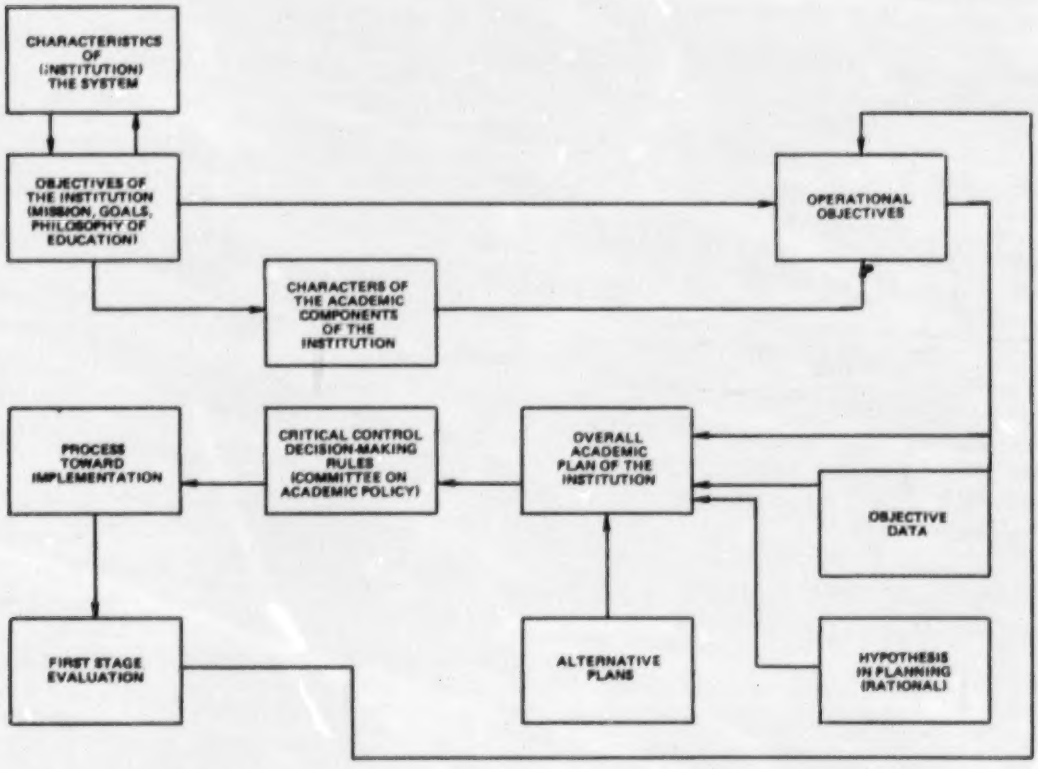
CHARACTERISTICS OF (INSTITUTION) THE SYSTEM
OBJECTIVES OF THE INSTITUTION (MISSION, GOALS, PHILOSOPHY OF EDUCATION)
OPERATIONAL OBJECTIVES
CHARACTERS OF THE ACADEMIC COMPONENTS OF THE INSTITUTION
PROCESS TOWARD IMPLEMENTATION
CRITICAL CONTROL DECISION-MAKING RULES (COMMITTEE ON ACADEMIC POLICY)
OVERALL ACADEMIC PLAN OF THE INSTITUTION
OBJECTIVE DATA
FIRST STAGE EVALUATION
ALTERNATIVE PLANS
HYPOTHESIS IN PLANNING (RATIONAL)

Figure IV. Academic Planning Flowchart

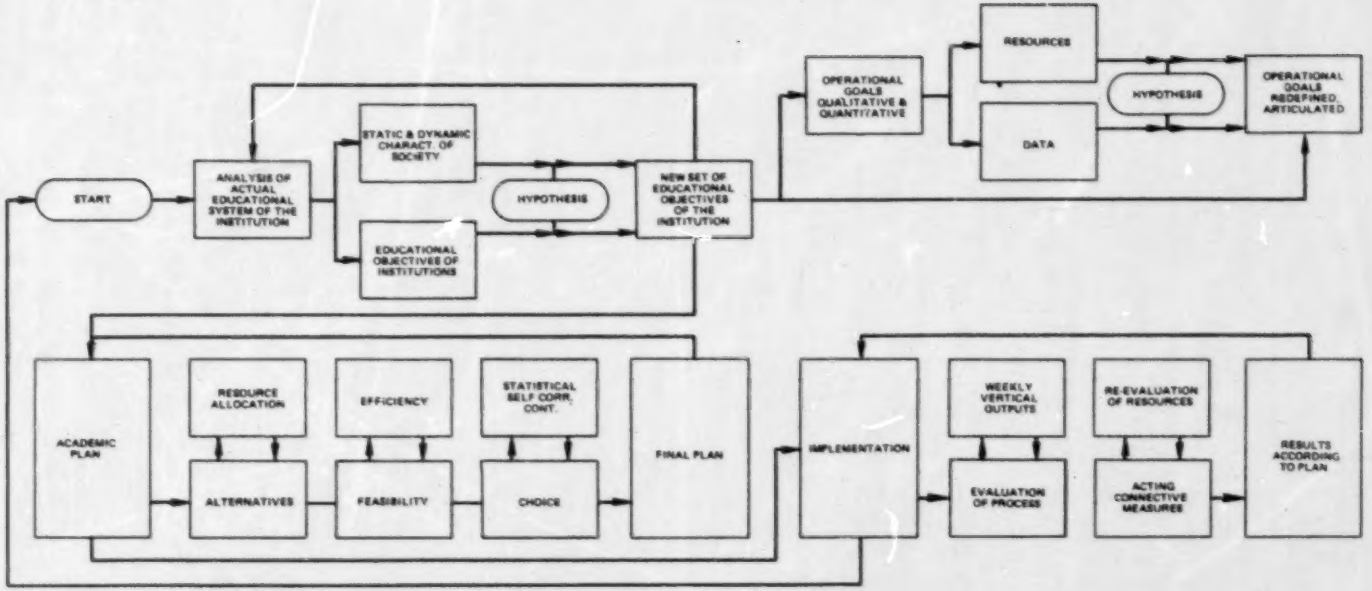

Figure V. Process of Institutional Curriculum Planning

A CAPSUALIZED APPRAISAL OF EXISTING SYSTEM MODELS

(i) *(OASIS)--On-Line Administrative Information System.* This is a management information system for data related to current institutional operations. The goal is to provide department chairmen, program directors, and top level administrators with data compiled, compared and analyzed for their information. The OASIS is built on the aggregate of files from various university offices.

(ii) *(TOTAL)*–This is a proprietary computer software program which a college or university can use to compile, store and retrieve information related to the operation of the institution. Developed by CINCOM Systems in Ohio, it is an integrated, data based management information system primarily concerned with daily operations.

(iii) *(AIDS)–Administrative Information Distribution System.* Three particular management principles were set forth to be served by the system:

(a) Management by Objective
(b) Management by Exception
(c) Management by Perception

AIDS is intended to identify major objectives of the institution and provide review of the progress realized in efforts to accomplish those objectives.

(iv) *(MARK IV)*–This is a system which facilitates file definition, organization, maintenance, scanning and selection of data. It arranges and sorts available data, summarizes information, and provides reports according to various specifications. The outputs include paychecks, labels, invoices, journal entries and similar records. The educational application of MARK IV includes student records, central stores inventory, alumni records, faculty personnel data, payroll preparation, class scheduling, student registration, accounting, and library cataloguing.

(v) *(NCHEMS)*–National Center for Higher Education Systems. This is similar to TACTICS/ISE/MIS.

(vi) *(CAMPUS)–Comprehensive Analytical Methods for Planning in University Systems.* This is an integrated, data-based planning system. The inputs include data on programs, students, staff, race, equipment, and finances. Incorporated into the system is a computer simulation function. It can be used to generate multi-year, annual or semester reports; past, current, or future; detailed or general.

(vii) *(SEARCH)–Systems for Evaluating Alternative Resource Commitments in Higher Education.* This system explores the magnitudes of alternative policy decisions or alternatives in the learning environment. Statistics on students, programs, faculty, facilities, and finance over time are used as a basis from which to project future data by yearly intervals up to ten years.

(viii) *(HELP/PLANTRAN)–Higher Education Long-Range Planning/Planning Translator.* This system includes a program and a consulting service to work with administrators for an institution to determine the important elements to be considered in planning for the college or university.

(ix) *(CEM)–Cost Estimated Model.* This model provides an actual system of translating the data elements of NCHEMS into a computerized system model to be used by a college or university. The model is suitable for projecting unit costs for instruction and for aggregating five-year budget forecasts. These results can then be tested in terms of enrollment projections and variations in academic policies. Such matters as admission policies, program offerings, teaching loads, class size, and faculty requirements can be investigated.

(x) *(TEMPLAN)*–This system is a relatively simple model suitable for simulating the annual incremental effect of trends and of various assumptions about future conditions and policies. The system can function in two ways. It can project for a given number of years changes in any one or all of the four categories according to any specific assumption, such as a straight-line projection of enrollment increases of 5% per year. Or projected goals such as balanced budget based upon increases in tuition income, can be specified for five years in the future and the incremented steps year by year backward from that goal can be computed for each of the four categories: 1) Enrollment, 2) Faculty, 3) Income, and 4) Expenditures.

(xi) *(NACUBO)–Planning, Budgeting and Accounting Manual for Colleges.* This is a procedural handbook or guide to a planning and budget process, entitled program planning cycle. The manual envisages a continuing process within a college or university of reviewing institutional policies, objectives and programs and the costs of educational and supporting programs for one, two, and five-year projections of expense and income. The manual outlines a program planning process requiring a planning team within the administration of a college and an analytical studies group representing administration, faculty, and students.

(xii) *(CUP/AFMR)–College and University Planning/American Foundation for Management.* This is more a planning process for private, medium sized, liberal arts colleges. The purpose of the process is to systematize and formalize the planning process of a college. The factors and variables in planning are organized and structured in such a way as to require careful, systematic attention. The planning process is divided into three phases: 1) definition of the underlying philosophy and purpose of the institution, 2) enumeration of the current resources of the institution and of the data utilized in the current resources of the institution and of the data utilized in current decision-making and organization of quantitative data

about the institution and its environment and 3) identification of the gaps between philosophy and purpose and resource of the institutions, especially as past trends are projected into the future.

(xiii) (AOS/NLHE)–*Administrative and Organizational Systems/National Laboratory for Higher Education.* This model delineated concepts and techniques related to systematic management and planning in colleges and universities. NLHE approach emphasizes two objectives: 1) to assist in particular the smaller institutions and 2) to individualize assistance oriented to the needs of a particular institution.

(xiv) *(CAUSE)–College and University Systems Exchange.* This is not a system but a new organization for the exchange of information about systems and perhaps even an exchange of programs where these are in the public domain. CAUSE has set up six divisions with persons drawn from its membership concerned with applications systems exchange, information systems development, installation management, hardware and software systems, professional development, and smaller computer users.

(xv) *(PPBS)–Planning-Programming-Budgeting System.* This system provides a method for determining the costs of program goals and objectives. PPBS is an approach to cost-effectiveness which seeks to make the best use of available resources in the attainment of system goals through budgeting on a program rather than on a line-item basis.

(xvi) *MANAGEMENT BY OBJECTIVES (MBO).* Management by Objectives is managing by demonstrable, measurable results toward predetermined goals and objectives. It provides a viable alternative to administering by abdication, crisis, fear, charisma, or "common sense". MBO is a particular way of thinking about management.

The primary effects of employing management-by-objectives in education are to be seen in such tangible results as improved learning, more relevant curricula, lower drop-out rates, and more efficient use of available dollars. The system of management-by-objectives improves the efficiency and effectiveness of a school, college or university.

(xvii) *THE DELPHI TECHNIQUE*–The Delphi technique is a method of assessing group opinion by individuals through responses to a series of successive questionnaires, rather than through a series of group meetings. This approach provides an institution with a more objective means to 1) assess the range of ideas about goals and objectives, 2) give priority to these goals and objectives, and 3) establish the degree of consenses about the goals and objectives.

(xviii) *PROGRAM EVALUATION AND REVIEW TECHNIQUE–(PERT)*–Program evaluation and review technique can assist implementing the goals and objectives

already set. A constructive network is the foundation of the PERT system. It helps to show the plan established to reach program goals and objectives, interrelationships and interdependencies of program elements and priorities of the elements of the plan. The PERT procedure can be applied to almost any project where logical planning is required. However, repetitious activities such as student registration procedures are not the kind of projects for which PERT is most useful. But a project designed to develop a new registration procedure, to be ready *by a certain date*, would be. Generally, PERT becomes a highly desirable tool where there is a task whose completion will take at least two months and one in which the network consists of at least ten (10) distinct events.

The PERT procedure helps to efficiently and effectively implement established goals and objectives.

(xix) *OPERATIONS RESEARCH (OR)*—Delphi helps to set goals and objectives. PERT helps to implement them. PPBS shows what each will cost. Operations research (OR) enables one to analyze and evaluate proposed means for implementing them before taking real action.

— The models take the form of an equation in which a measure of an institution's overall performance is equated to a relationship between a set of controlled aspects.

— Users must be able to explicitly state both those variables which may be controlled and not controlled.

— All objectives must be quantifiable.

In essence, the tools of OR are tools of information and of information processing not of decisionmaking. The focus on alternative courses of action

SUMMARY AND CONCLUSIONS

It is hoped that members of this audience will become increasingly involved in academic planning and utilize the systems approach. We have presented to you sophisticated fundamentals and techniques of universal application and certainly they offer transferability to the field of education. Such concepts should not scare you. We have tried to say to you that education at your institution and the optimum progress of education depends on whether the inter-related parts are working in complete harmony to achieve objectives and goals at your school and society at large.

If you need help, call us and TACTICS will do what it can.

PERSPECTIVES ON THE ADVANCED INSTITUTIONAL DEVELOPMENT PROGRAM:

WHAT IT MEANS TO YOU

PERSPECTIVES ON THE ADVANCED INSTITUTIONAL DEVELOPMENT PROGRAM: WHAT IT MEANS TO YOU

Mrs. Anita F. Allen
Chief, Advanced Institutional Development Branch
Division of Institutional Development
Bureau of Postsecondary Education
U.S. Office of Education

This afternoon I would like to consider with you on an informal basis the Advanced Institutional Development Program. I am assuming, because of who you are and where you have come from, that everybody here knows what the AID Program represents and that it is a part of Title III of the Higher Education Act.

First I will touch briefly on what the AID Program is all about, with references to draft regulations, the program information document, and perhaps to some of the information given at the one day workshops which we held last August. Second, after I cover these areas of concern, I will, as Mr. Welch has suggested, discuss with you what was right or wrong with AID Program proposals to the extent that I can. Finally I will answer questions that you may have.

First, we are talking about a new program under Title III of the Higher Education Act. Most of you know the legislation, "Strengthening Developing Institutions," which is Title III of Higher Education Act and has been with us since 1965-66.

The Advanced Institutional Development Program came into existence officially last year after much discussion, including conferences across the country to solicit input from various educational and ethnic groups as to what the emphasis of a program should be with additional funds for Title III.

In the Office of Education, we had put together a plan, a theory, if you please, about what a new kind of support program might be for the developing institutions. There is no new legislation involved for the new Title III program. We're still talking about Title III of the Higher Education Act. Therefore, the institutions which are eligible are in the category of institutions called "developing" institutions. In the opinion of the Office of Education planning committee some institutions are further along in their development than other developing institutions. Our working theory was that it would be possible to identify those developing institutions that are farther along and that could provide us with long-range plans which would encompass major goals and objectives. The Advanced Program would then be able to fund a portion of the program conceived by the institution.

We discovered last July that the supplemental Health, Education, and Welfare appropriation that had been passed and then vetoed had been passed again. There was an appropriation of $35.5 million for the new Title III program and what we had envisioned in theory was about to reach fruition.

We initiated a program that was uniquely different, but met the legislative requirements, responsibilities, and opportunities of the ongoing Title III program. The new program became the Advanced Institutional Development Program.

We began by saying that an "advanced institution", the strongest of the developing institutions, should have a sense of mission—a sense of what is needed by the institution to move from where it is to a significantly higher level of maturity and development by the end of a three to five year period, depending on its planning cycle. We said that the institution, in order to participate, must have a long-range plan, not for the benefit of the Office of Education, but to use itself as an index of its expected goal performance. The long-range plan would serve as the institution's operational base for delineating the program activities and time requirements necessary to achieve sought-after goals. Please keep in mind, we are speaking not of a plan for the use of Title III money, but of a plan for institutional development.

We stressed that the institution must have a sense of what it is all about, where its students originate, where they go after graduation, the types of jobs they get, the types of jobs they are prepared for, a sense of the community it is serving and it will be serving through the years. The kinds of courses the institution has added or dropped would be analysed in view of the mission.

Next, we said that there would have to be a program plan describing what the institution would do and what it would ask the AID Program to support. We asked the institution to analyze its planning, management, and evaluation capabilities for purposes of moving it into tomorrow because the institution should understand where it is with respect to its planning capability and be able to define its management requirements. Therefore, up to ten percent of the grant award may be used to ensure the development or improvement of a strong planning, management and evaluation capability by the end of the grant period.

We said that there had to be an evaluation plan because the 1972 Education Amendments added the requirement for evaluation to the Title III program. We went a step farther and requested that when you tell us what it is you are going to do, include how you expect to evaluate, first, movement toward achievement of the goals of the institution, and second, the activities which you are proposing to fund under the AIDP grant. In essence, we wanted at least a two-level evaluation. During the August 1973, application workshops where the application forms and information materials were distributed, we indicated that there would have to be benchmarks and milestones by which progress could be measured.

It is imperative that in addition to a description of activities to be undertaken during the grant period, it be clear that your best efforts will be focused on what you set out to do. In other words, there must be evaluation.

Another aspect of the institution's operational processes is a budget plan. Thus, these are the objectives, the plan to achieve them, and the amount of money that is required. Title III indicates that the Commissioner is authorized to make grants to institutions of higher education to pay *part* of the cost for planning and developing programs. The exact percentage the government will pay is not spelled out, but it is clear that the institution has to have a commitment to what it says is its plan, and must indicate that commitment by contributing its resources to make the plan effective.

Finally we said that there has to be a fund replacement plan. Admittedly, this has been a controversial area, but nevertheless, it is a requirement that there be a fund replacement plan indicating how those programs that should continue at the end of the grant period could be continued. The Office of Education does not want to be in the position of supporting an institution for three to five years and then be obligated to continue those programs or activities at a high level in perpetuity. We also do not want the institution to be in the position of having to drop the programs or activities when Federal monies are not available. Therefore, there is to be a phasing-in, peaking, and then a phasing-down of Federal money while phasing-in the non-Federal money to continue those programs that are not one time efforts.

The above is a summary of the prominent features of the AID Program and the way we stated them originally. They are the foundations of the theory on which the program was based. They are the original inputs which were built into the regulations.

On the question of what makes a good proposal or what did we find right in the proposals? We found that some institutions took the regulations and program information relative to AIDP very seriously. The question involving constituencies in assessing where the institution is headed and how it is going to get there was taken very seriously. Some took seriously the question of what the institution needs to do to cut back and restructure what it is already doing. The best proposals showed top administrators who bit the bullet to ensure that they were not just adding programs because the money is available, but rather were adding programs that would lead toward institutional development, however that might be defined. We are struggling with the concept because total institutional development is our concern.

Those proposals that we read and funded were selected because the field readers felt strongly that the institutions represented had given evidence of knowing who they are, what they stand for, where they are going, and that some thought had gone into how the institution might be able to achieve its goals and objectives, if it were funded. We had a very thorough review of the AIDP proposals utilizing four outside readers and at least one Office of Education staff member with consensus sessions between the field readers leading to a general consensus. Then the AIDP staff assessed the field readers recommendations of the proposals.

Some institutions indicated an enrollment comprised of 95 percent low-income or educationally deprived students and built their program in such a way as to accommodate those students. Some recognized that their graduates had not been successful in going onto graduate schools or to new or emerging career opportunities and proposed restructuring the regular programs of the institution. Some proposed restructuring curricula or designing new curricula to raise achievement levels of the particular students.

Some institutions indicated they had a management system in place and did a good job of defining where they are, where they need to go, and what they expect the Office of Education to do in assisting them in developing a better planning capability. Not every institution did well in delineating thoroughly what the evaluation plan would look like, but some did a very good job. The same was true for the budget plan and the fund replacement plan. Some were realistic by giving alternatives and options for fund replacement. In total, some took seriously the opportunity and the requirements of the program.

Generally speaking, the good proposals followed the requirements of the program in such a way that the program activities "hang together", and in hanging together provide some focus and give promise of some impact of the Federal dollar in moving the institution forward. To the extent that we had the money, the better proposals received the initial grant awards. There were a few that we would have liked to fund, but the lack of sufficient funds prevented this. More proposals were submitted for funding with Fiscal Year 1974 funds than with Fiscal Year 1973 funds. Therefore, hopefully, we will have a good competition.

In listening to Mr. Welch, I observed that he mentioned the Division of College Support. Following reorganization and a physical move, it is now called the Division of Institutional Development. I think it is important to recognize that it is more than just a change in the name. The Title III program, as I see it, does not provide general support money, but rather money for those institutions that know where they want to go, how they will attain their objectives, and in general, make a good case for themselves.

If you ask me what was wrong with the applications received by us, I will talk longer because we saw much that should have been done to enable an institution to make a case for itself.

Let us start with the same features of the proposal in the same order that I listed earlier. With respect to the mission statement, many of our field readers commented time after time that the mission and objectives are couched in global and general terms. They felt that the mission statement must have been taken verbatim from the college catalog. There are indications that some institutions are not aware of their goals and objectives except that they want to continue to exist. In many instances, the field readers stated that the institution did not set forth its objectives in clear, concrete terms, an area AIDP considered a *key* portion of the application. The mission statement, goals and specific objectives were a very weak part of many applications received. The program objectives were described in very general terms,— "improve curriculum, better prepare our students for the world tomorrow, improve the quality of the educational opportunities of students, etc.". There was no substance to build on; no clear delineation of where the institution wants to go or the program activity needing support.

Sometimes a proposal stated that because of the caliber of our students we need remedial programs. What kind of remedial programs? Well, I do not think that had really been thought through. And if it had been thought through, it was not apparent in many applications. In some instances we had proposals for a program that did not correspond to statements made in the mission statement section. For example, an application might show that 95 percent of the major focus of the proposal is to develop a 2½ year bachelor's degree program. Where are

the students with their necessary capabilities going to come from? The odds are against the students that the institution says it has been able to complete such a program. While the college might *hope* that the world is going to be different tomorrow and that they are going to wake up to find that their student body and its characteristics have changed, the institution should make a realistic assessment of where they are and where they expect to go. We expect it to propose a realistic program to achieve its objectives.

In some instances, the institution proposed adding or planning for a graduate department. The Title III program supports *only* undergraduate programs and activities. While we would like to better prepare students for graduate or professional training, AIDP cannot support graduate programs.

As for the management system, we did not request that you describe your present equipment or tell us the kind of equipment you were going to buy, we asked for a statement that required preparation by knowledgeable persons. We requested a flow chart of the planning process be attached. In some of the weaker proposals an organizational chart was included instead, which told the field readers that the institution does not understand planning. Some organizational charts did not even show who makes the decision at the institution under question. In some cases where an organizationa chart was included, the institution rather than requesting funds to improve its planning capability wished to buy a very complicated and sophisticated hardware package that still would not address the question of how decisions are made or how planning is carried out at the institution.

On the subject of the evaluation plan, I do not know how institutions conduct evaluations, but AIDP takes this matter seriously. Evaluation must be addressed by the applicant institution. You must know what your measurable objectives are, how long it will take you to achieve these objectives, and the budgeting requirements. In other words, you are going to have to think through what you plan to do, how you plan to do it, how much it is going to cost and how you will tell whether you have succeeded.

Without question, the evaluation section in many applications was very weak. Sometimes there was an indication that there would be a questionnaire or interviews of so many faculty members and so many students at the end of the program. There was generally no statement of the personnel responsible for conducting the interviews or how the information obtained would be utilized. This critical area must be looked at unhesitatingly by the academicians or managers, or both. I would choose the manager. In any event, both are going to have to work together to enable the management people to translate for those in academic areas that decisions on objectives and goals, other than spending the money, and a timetable for achieving the planned goals will have to be established, monitored, and reported.

Next, the budget plan. We saw a variety of budgets—some very bad. It appeared that different people put together some figures on a form and sent them in. I had a very interesting experience when a person from one of the unsuccessful applicant institutions during the course of the discussion about the whole application, looked at the budget and discovered that there was no money shown at all as contributed by the institution. Nobody had thought to enter any figures to indicate that the institution has any commitment to the programs it proposed.

There were wild figures in terms of an estimate of what the proposed activities would cost. Even for some of the highly assessed, well thought out proposals, including some of our grantee institutions, the opinion of the field readers was "an excellent program", "well thought through", "hangs together", "makes sense", etc., but "can be accomplished with half the money". We had more than one person knowledgeable on pricing programs and management to look at what was being requested. The budgets, without question, were very bad. They were not realistic or thought through in terms of what was being proposed.

When we asked for the fund replacement plan, I am sure, in some instances, it was put together after somebody got up off his knees and said, "Oh Lord, what will we do?" A few sentences were written that essentially said, "While we haven't done it before, if you give us this money, three years from now we will be adding $10,000,000 a year to our endowment, because we will be encouraged to get out and find the money". Or, "We do not think we will worry about that because we are going to mount an alumni solicitation program. We have never done it before, but we are going to do it now and we will have sufficient income by the end of this grant period to carry on the program. Now we have not thought through exactly how we are going to do this or how we are going to find the graduates that we have not kept up with over the years, but we are going to do it. You just trust us". I must impress upon you that this is one requirement of the program that Health, Education and Welfare has said will have to be thought through and must be realistic. An institution has to understand when it accepts the money that, while there may be the possibility of new Federal dollars in the future that have not been legislated or appropriated for the purpose of this program at this time, the application must show clearly how the institution will continue the program so that the Office of Education does not have a commitment in perpetuity to those institutions funded. This makes sense when you seriously think about it. The same institutions may be funded again, but do not count on it. For the purpose of this program, a realistic assessment of the institution's fund replacement plan must be built in and alternative ways of achieving the financial level necessary for continuing the program must be in place at the end of the grant period.

In essence, the AID Program was conceived as a more structured program than most undertaken previously by the Office of Education, and it is still perceived of that way. We take seriously the mandate given to us to assist the institutions by providing them an opportunity to think through their objectives for themselves and determine what steps will be necessary to achieve the goals. We believe that AIDP is an opportunity for those institutions that are ready to accept it. We take seriously the requirements, the necessity, for us to be able to say how the Federal dollars are spent and what is accomplished. You are going to have to provide us with the information and the success stories.

I would very much like to be able to send a team of people next year to any one of the grantee institutions and say, "You will find these activities going on. These are the people who will be involved. There are the students who are involved. This is the progress they have made." I would like to be able to send a team of Congressmen, National Advisory Council members, and experts of various types to one of these institutions to see the AID Program, confident that they will be pleased with what has been undertaken.

This program is not a continuation on a bigger scale of the Basic Institutional Development Program. I must impress upon you that the AID Program is different in the sense of its structure, its requirements, and we hope in its sustained impact on the grantee institutions. We think that those institutions that are not presently in the upper quartile statistically of developing institutions may very well find that in the next year or so they too will have the same structured program planning, management, and evaluation requirements as the advanced institutions. We think we are planting the ground for a future harvest of Federal financing for programs at developing institutions.

The Advanced Institutional Development Program is the wave of the future and those who wish to remain in the Title III program should get on the bandwagon.

QUESTION AND DISCUSSION

Ed Lundin, Spelman College: I was wondering about the review process for AIDP proposals. If the amount awarded for the AIDP proposal reflected a sum that the review committee and the Branch thought was necessary for the institution to have to achieve its program goals, or if the sum represented a kind of assessment of the quality of the document. In other words, was it against criteria that the document was judged, or was it judged in terms of the feasibility of attaining those goals of the granted amount of money?

Anita F. Allen: First of all, we started out with $35,500,000. This year we received the full $48,000,000 that the administration asked for. Originally, we were talking about a small number of institutions and we had said that the maximum award size would be about $4,000,000. A range of $750,000 to $4,000,000 had been thought through in terms of the operating budgets of the developing institutions, and what was thought to be the absorptive capacity for outside funds of the institution. We felt that there was a dollar level above which the Federal government should not fund when the grant expired. Therefore, it was not feasible to think we could fund some institutions at the level they requested: $11,000,000 or $16,000,000 out of $35,500,000 appropriation.

There were no proposals I can recall for which three out of the four field readers thought that the amount of money asked for could be justified in terms of what was in the proposal. While the field readers were excited about some of what was proposed, and the way the proposal was put together, they felt that the dollars needed had been overstated. We, therefore, felt we had to cut back on the money. Another thing I'd like to call to your attention is that there were a number of illegal activities proposed by some of the grantee institutions. Sometimes activities were not just illegal, they were inappropriate. So a great deal of thought went into the amount of money that actually was awarded to a particular institution. To the extent we could, based on our analysis of the proposal, the awards were as close to the amount requested as was possible.

Of course, we had a particular problem with the two-year institutions. Often those institutions could not justify the requests they were making.

Don Miller, Lincoln University, Pennsylvania: There's been some feedback that some of the schools who received the AIDP were dissatisfied because they felt they would have done better if they concentrated on the basics. Could you give me any reason, if you know any, why they would think this way?

Anita F. Allen: I have not heard that directly. The institutions are not required to accept the AIDP grant. We call them to say that they have been proposed for these activities. At that time, the institution only has to say we do not want your money, or we would rather stay with the basic program. However, we require a great deal including planning, restructuring, evaluation, monitoring, and reporting that some institutions may not want to do. In terms of size of the award, I think AIDP awards to single institutions are larger than the BIPD awards would have been. I guarantee that any institution receiving an AIDP award has two things that no BIPD funded institution have—dollars in hand, no worries whether Congress is going to appropriate money next year or the year after or the year after that. The money is there. In short, the two reasons that I could think of for the supposed dissatisfaction would, one, the size of the award, which so far as I am concerned is larger, and is assured. Second, the requirements, and a number of institutions have told me that the planning process is good for the institution even though they may never get an advanced award because it permitted or required them to make decisions that they might not have been able to make had they not had this deadline to meet in order to apply for the award.

Ed Lundin: One other question. Why was the indirect cost eliminated from the AIDP?

Anita F. Allen: Indirect cost has been eliminated in Title III by HEW. The thinking was as follows: Indirect cost is generally paid for the cost to the institution when the institution is providing services to the Federal government. Whenever a service that you have to perform involves costs to the institution, the Federal government will pay indirect cost. But under AIDP, you are not performing a service for the Federal government. Rather the money is for the development of the institution—the substance of what the institution is all about—not for a return to the Federal government. So it is clear that indirect costs will not be allowed, period.

James Welch: Will there be a guideline of what is chargeable in terms of direct cost line items for the institutions?

Anita F. Allen: I do not think there will be any new guidelines. The guidelines are in the OE General Provisions and apply across the board. According to the way it was explained to me, indirect costs are not allowed. However, if there is a cost that you do not include as an indirect cost of your institution which you wish to propose for this program and it is directly relatable to viable program, include it in the budget plan. It can be negotiated. Let me make it clear, however, that if you do not count it as a direct cost for the institution, you cannot count it as a direct cost for the Federal government. If you have something that's borderline, propose it and it will be negotiated.

Joshua Williams, Florida A&M University: We're one of those schools that failed the examination. Now will we have occasion to rectify or modify or resubmit?

Anita F. Allen: You mean for Fiscal Years 1973 and 1974, right?

Joshua Williams: Right.

Anita F. Allen: We have not made any awards for Fiscal Year 1974. Your institution could have submitted a new application by December 19th, or it could have modified in writing any portion of the application that was already there by December 19th, but December 19th was the closing date for receipt of new applications or modifying applications submitted previously to the Office of Education.

Walter Johnson, Bishop College: What I think he's referring to is will he be given an opportunity to get some of the details related to his own proposals, and for some of those who may be funded, may they get the opportunity to get the review in terms of developing and processing these applications?

Anita F. Allen: The field reader comments for funded institutions are public information. However, field readers' names are not. Anyone who wishes may come in and read the proposal and comments. In terms of the proposal from your particular institution, when the application is no longer under consideration, you may come in and we will go over with you what was said. In June, the institutions will know what dispositions were made on their applications, and we are attempting now to work out a way to either summarize or send you a copy of at least one field reader's comment on the application.

O'Leary Sanders, Florida Memorial College: The Basic Institutional Program which has been in existence for 8 years had some of the same rationales and some objectives which AIDP has right now. Do you think you have any instrument which you are going to devise so you might make those colleges go along with what they are proposing in these plans at the end of the three to five year period, and will there be replacement fund somewhere along the line?

Anita F. Allen: I do not know whether there will be replacement funds. The Title III legislation expires in 1975. There will be new legislation, but I do not know what the Congress will come up with. Therefore, we cannot count on it. In terms of contributions we are under the same legislation. The law says that the Commissioner will only pay part of the cost for implementing whatever the application requests. You will have to show what you are putting into the program. We should not pay 100 percent of the cost of this program at an institution, and we are not paying it.

The next question is, can we make the institutions do it? The AID Program, as I see it, provides an opportunity for the institution to move where the administration sees its opportunity and wants to work with it. I have tried never to promise that which I know we do not intend to deliver. An institution can misspend the money and get away with it for awhile, but sooner or later, auditors, time, or something catches up with an institution.

AIDP is a great opportunity for institutions to do what has to be done, and I would like to see the first set of grantees do what the law requires of them for the sake of the institution and the sake of the future of the program.

Blanche Case, Phelps Stokes Fund, New York: Could you tell me briefly what accountability, if any, will the schools have to do as far as reporting to the agency.

Anita F. Allen: There will be all kinds of people looking over the shoulder of the grantee institutions. We expect at this time that we'll have at least semi-annual, probably quarterly, reports and that includes both financial and program reports. We will be able to monitor the progress in terms of objectives and goal achievement. We will also monitor the spending of dollars. Again, while we think that this is what the institution will want to do for itself, we in the Office of Education will want to see what is going on.

This is the end of my time, and I would like to agair. thank you for permitting me to share with you in these few moments information about a program that I think is going to be around awhile. We are talking about "advanced" developing institutions, and I think it is fortunate that no institution has a right to the AIDP funds. AIDP is not structured that way. We have identified an upper quartile of developing institutions—this time it was 105 our of 205 that proved to be above the "floor" for developing institutions. Out of the 105 you can be sure that there will be some competition based on the quality of the proposal. The sincerity, the thought, whether it hangs together, whether it impresses somebody as coming from people who have thought it through, whether it appears that the top administration is a part of the planning, and whether the faculty and the students have been involved so as to give the program a chance to succeed are factors of major importance. These factors come through in a proposal. If the top guy has not been involved, it does not take long to find that out.

So, we hope that sooner or later all of you will come in and work with us.